



TECHNICAL MEMORANDUM #1: EXISTING CONDITIONS

To: Town of Concord
From: Nelson\Nygaard
Date: March 20, 2013
Subject: Existing Conditions

Working closely with the Town of Concord Planning Division, Police Department, and Concord Public Works, the consultant team documented and evaluated the parking environment in the Town of Concord's two major sub-centers, Concord Center/Thoreau Street Depot and West Concord.

This team conducted extensive data collection that included on the ground evaluation of parking assets and local input. The intent of this effort is to establish a broad, yet detailed, benchmark of current parking practice in Concord. Through close correspondence with the Town, the team defined a study area for each sub-center at sufficient scale to include all critical parking assets and encompass any perceived parking issues. This documentation of existing conditions has informed the team's recommendations and provided a benchmark for community discussion and policy decisions on parking and land use policy.

The existing conditions data summarized in this chapter was collected primarily during the months of May and June 2012. The data includes an inventory of the current supply and utilization of on and off-street parking in the Concord Center/Thoreau Street Depot and West Concord centers.

This memorandum includes maps, tables, and summaries of the Existing Conditions pertinent to the team's key findings. The work also includes a more detailed technical appendix with electronic versions of all data available for future use and review. The memorandum primarily is organized to present parking information under the following headings:

- **Parking Inventory** – A review of all parking spaces by location and regulation
 - Concord Center/Thoreau Street Depot
 - West Concord
- **Parking Utilization** – Observed use of existing parking through the course of a typical weekday and weekend. Includes utilization profiles of "core" areas, general and restricted access lots, and publicly and privately owned lots.
 - Concord Center/Thoreau Street Depot
 - West Concord

PARKING INVENTORY

A complete understanding of the parking supply is the base component to understanding parking patterns and behaviors. To catalog all of the parking spaces in Concord, the team went into the field in the defined study areas and documented all on-street spaces and all general-access and restricted parking facilities, excluding driveways in residential areas. The inventory was compiled and used to create a complete parking database of all parking facilities in Concord. The database was then geocoded to spatially display the existing parking areas on maps. This initial work created the base information used throughout the entire project.

STUDY AREAS

The Town of Concord has two primary neighborhood business districts: the Concord Center/Thoreau Street Depot area, which includes Monument Square and the Concord MBTA commuter rail station, and West Concord, including the West Concord MBTA station.

The Concord Center/Thoreau Street Depot (referenced here as "Concord Center") study area covers a majority of parking spaces within about 350 acres in Concord Center and the Thoreau Street Depot, including the Emerson Playground area. The study area is bounded by:

- Keyes Road town lots to the north
- Monument Square and the Concord Museum to the east
- Alcott Elementary School and Emerson Playground to the south
- Thoreau Street Depot station area to the west

The West Concord study area, a much smaller area of activity than Concord Center, includes about 150 acres, containing the retail centers of Commonwealth Avenue and Main Street, Rideout Playground, and the station area. The study area is bounded by:

- Winthrop Street lots to the north
- Main Street at Baker Avenue to the east
- Pleasant Street and Riverside Avenue to the south
- Rideout Playground area to the west

Both study areas center on the key areas of activity but also include one to two streets immediately adjacent to the primary areas of interest. Surrounding streets, often residential streets, are included in the study area to observe any spillover effect of the commercial, commuting, and recreational activity. The study areas' boundaries were reviewed with Town staff and approved per the scope of this effort, as well as vetted through stakeholder interviews, to confirm that the major centers of activity were included.

SUMMARY

The Town's parking study is a town-wide effort with an emphasis on Concord's two primary "sub-centers", Concord Center and West Concord. The parking study was undertaken in both areas simultaneously to develop a consistent approach. Concord understands and recognizes that although the two sub-areas have distinct differences, they are studied concurrently to identify common themes, major differences, and in later stages of the effort, adopt changes and improvements that are consistent in nature and approach.

Overall, the study captured more than 6,600 total parking spaces combined in Concord Center and West Concord (Figure 1). Data collectors documented each space and recorded it by use, type, and regulation.

Figure 1 Parking Inventory: Summary

	Concord Center/ Thoreau Street Depot	West Concord	Total
On-street	1,191	678	1,869
Off-street	2,708	2,094	4,802
Total	3,899	2,772	6,671

Concord Center and West Concord both have distinct parking characteristics and several similarities. Each sub-center is explored in detail in the following sections, but general findings of the two areas are as follows:

- Both areas have many more off-street parking spaces than on-street
- Concord Center has a higher percentage of general-access, publicly-available parking spaces than West Concord
- Concord Center has a larger variety of distinct time regulations on its on-street parking spaces.
- Both areas have the same meter type, pricing, and hours of operation, making it easy to understand for the visitor
- 76% of the off-street parking in Concord Center is restricted to certain user groups while 91% of West Concord's off-street parking is similarly restricted.

CONCORD CENTER PARKING INVENTORY

KEY FINDINGS

- The study area includes nearly 4,000 parking spaces
- 74% of all parking spaces are in off-street lots
- The majority of the off-street parking supply is restricted to specific users, e.g. customer-only, employee-only, and tenant-only parking
- The vast majority of on-street spaces are generally accessible, meaning that in most on-street spaces, any user can park, regardless of trip purpose
 - 399 on-street spaces, or 34% of all on-street spaces in the study area, are located within a five minute walk of the Main Street and Walden Street intersection
- Less than 5% of the study area’s supply are fee parking for general use; these are exclusively 1-hour metered parking spaces in central business corridors, about 14% of all on-street spaces
- The breadth of on-street and off-street parking regulations and signage poses management challenges

This study area includes several busy areas of activity, in particular, the Monument Square/Main Street civic and shopping area, the Thoreau Street Depot rail station area, and Emerson Playground area. These three prime areas are included in the analysis as one large study area and as well as analyzed individually.

A summary of parking spaces in the Concord Center study area is in Figure 2. Off-street parking has been generally categorized in two ways to focus on who spaces are available to:

- *General access* parking is available for public use and may be owned by a public or private entity
- *Restricted access* parking is dedicated to a specific population, such as customers, tenants, or employees. Most off-street parking in Concord Center (73%) is restricted access parking.

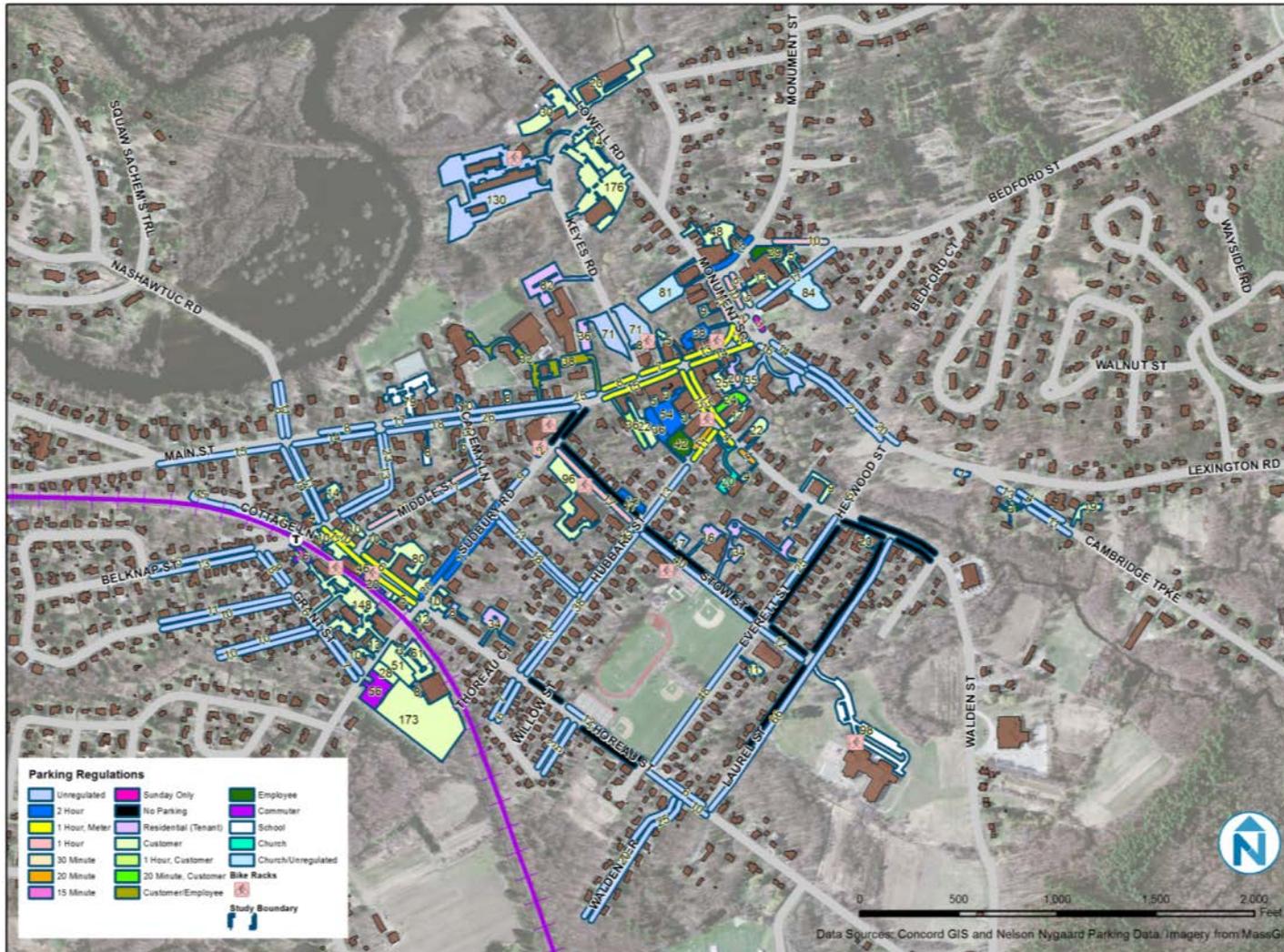
A full parking inventory is depicted in the parking regulatory map on the following page.

Figure 2 Parking Inventory: Concord Center

	# of Spaces	Percentage	% Restricted Access	% General Access
On-street	1,191	30%	0%	100%
Off-street	2,708	70%	73%	27%
Total	3,899		54%	46%

CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 3 Parking Supply and Regulations: Concord Center



On-Street Parking

Most on-street parking in the study area is "unregulated", or unrestricted, meaning that anyone can park on-street, for as long as they desire, regardless of trip purpose. This includes many residential streets that have parking on one or both sides of the street. About one-quarter of on-street parking, as shown in Figure 4, is restricted by time limits or pricing and time:

TIME: Many of the on-street spaces in Concord Center are regulated by time restrictions. Five types are present: 15 minute, 20 minute, 30 minute, 1 hour, and 2 hour spaces. These spaces are time-regulated to encourage turnover, preserving them for patrons of the shops and restaurants in Concord Center. Time-limited spaces, particularly the 1 and 2 hour spaces, are located in the heart of the central business corridors. Spaces with shorter time limits are primarily located for drop-offs and quick-trips at specific adjacent land uses, such as the public library and post office.

PRICING AND TIME: On-street parking spaces in the central business corridors in Concord Center and near the Concord Center Station are metered at a rate of \$0.50 per hour from 9am until 6pm Monday - Saturday. Metered spaces are located on Main Street and Walden Street in the downtown corridor and on Thoreau Street near the commuter rail station. Spaces have a maximum time limit of 1 hour to encourage customer turnover. The meters offer the first 12 minutes free, activated by pushing a button on the meter, effectively making the price to park for an hour \$0.40 (if the button is pushed).

All meters are single-head, coin-operated meters that stand on individual posts. Meters are a digital model from McKay (Canada), purchased by the Town in 2003. The meters are in good condition, have very few problems, and are maintained by the Town Police Department staff. There are 156 on-street meters in Concord Center.

Other Restrictions

Other restrictions include three parking spaces near the graveyard in Monument Square that are restricted to Sundays only. There is no parking by permit (residential, employee, or commuter) in Concord Center.

Figure 4 On-street Parking Regulations: Concord Center

Regulation	Supply	Percent
1 Hour	79	7%
1 Hour, Metered	139	12%
15 Minute	2	0%
2 hour	52	4%
20 Minute	10	1%
30 Minute	9	1%
Sunday Only	3	0%
Unregulated	897	75%
TOTAL	1,191	100%

Off-Street Parking

Off-street parking has been generally categorized in two ways to focus on who spaces are available to:

- *General access* parking is available for public use and may be owned by a public or private entity
- *Restricted access* parking is dedicated to a specific population, such as customers, tenants, or employees. Most off-street parking in Concord Center (73%) is restricted access parking.

General and restricted access off-street parking can be further categorized into specific regulations (Figure 5) and into three main regulatory groupings: use, time, and pricing and time:

USE: Half of the off-street supply is restricted to customer-only parking for certain businesses or business clusters; another third of the supply is restricted to employee or residential use. About 10% of the spaces are designated for residential tenants, 8% for schools, and 4% dedicated to employee parking.

TIME: One general access lot (Walden Street Lot) provides free, 2 hour parking for customers and visitors to the commercial district.

PRICING AND TIME: Eight spaces of the lot behind the Concord Visitor Center are priced at \$0.50 per hour, 9am - 6pm, Monday-Saturday (same rate and time period as on-street parking). The single-head meters have a maximum time limit of 1 hour to encourage customer turnover. The first 12 minutes are free, activated by a push-button on the meter.

Figure 5 Off-street Parking Regulations:
Concord Center

Regulation	Supply	Percent
1 Hour, Customer	36	1%
1 Hour, Metered	8	0%
2 hour	146	5%
20 Minute, Customer	24	1%
Church	20	1%
Church/Unregulated	165	6%
Commuter	92	3%
Customer	1,124	42%
Customer/Employee	150	6%
Employee	120	4%
Residential (Tenant)	260	10%
School	223	8%
Unregulated	340	13%
TOTAL	2,708	100%

Of all the off-street parking in Concord Center, 83% is privately-owned and 17% is publicly-owned. The Town of Concord owns and operates several general access parking lots in Concord Center, including the Walden Street Lot, the Keyes Road Lots, the Stow Street Lot, and the Vanderhoofs Lot (Figure 6).

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Figure 6 Map of Publicly-Owned Parking Lots in Concord Center



Commuter Parking

Concord Center has 92 off-street spaces available in three distinct lots for commuters taking the MBTA Fitchburg/South Action commuter rail line (Figure 7). The largest of these lots is located on Sudbury Road at Crosby's Supermarket (56 spaces). The two smaller lots are located adjacent to the Concord Center Station on Thoreau Street (20 spaces) and between Belknap Street and Concord Crossing (16 spaces). All commuter parking is free and available on a first-come, first-served basis. Additionally, unregulated street parking located along Cottage Lane is heavily utilized by commuters, with a 45 space capacity.

The designated spaces at Crosby's Market are dedicated to commuters through a special permit from the Town and at the Depot through a deed restriction.

Figure 7 Commuter Parking at Concord Center Station/Thoreau Street Depot



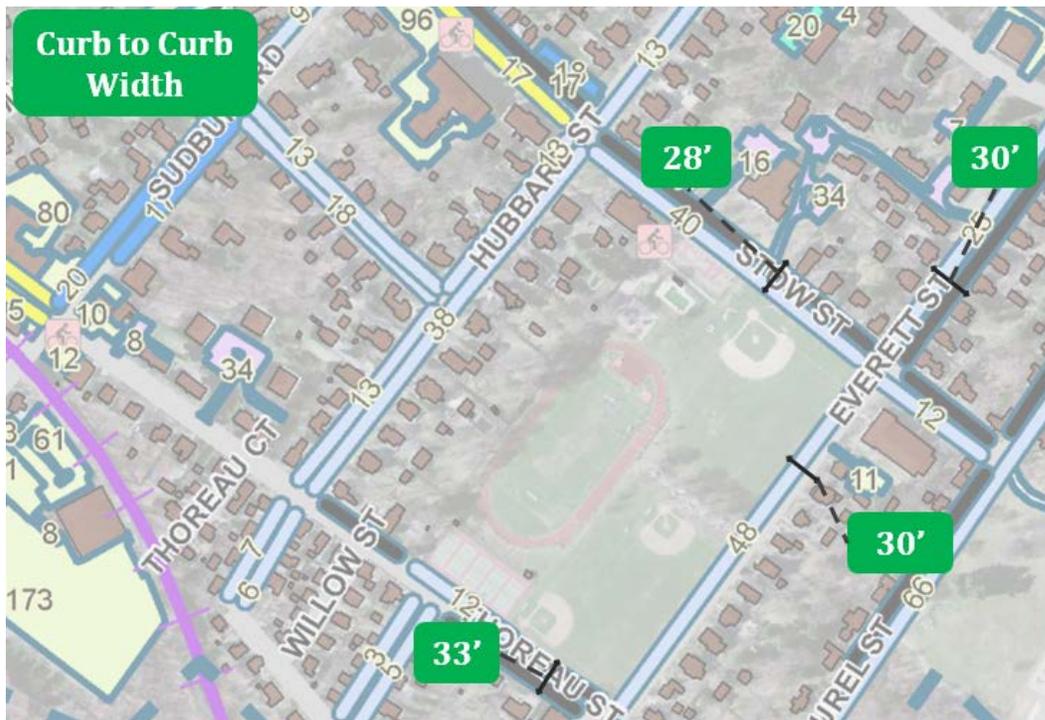
Recreational Parking

Concord Center's primary recreational area is Emerson Playground, bordered by Stow, Everett, and Thoreau Streets. The playground includes three baseball diamonds, tennis courts, a synthetic running track, a soccer field, basketball courts, pool, and a playground. The park is open daily from dawn until dusk.

The area immediately surrounding the Playground is primarily single family homes. Most of the homes have off-street private driveway parking.

Parking for the Playground is limited to on-street parking near the facilities. There are more than 150 on-street unregulated parking spaces immediately surrounding the Playground, and several hundred more within a few minutes' walk, including the lot at the Alcott Elementary School (98 spaces). Several of the surrounding streets allow parking only on one side of the street, although street widths indicate that there is potential for parking on both sides of the street.

Figure 8 Street Widths around Emerson Playground



Street widths approximated using Google Earth Pro

WEST CONCORD PARKING INVENTORY

KEY FINDINGS

- The study area includes 2,772 parking spaces
- 75% of all parking spaces are in off-street lots
- 91% of the off-street parking supply is restricted to specific users, e.g. customer-only, employee-only, and tenant-only parking
- The vast majority of on-street spaces are generally accessible, meaning that in most on-street spaces, any user can park, regardless of trip purpose or length
 - 87 on-street spaces, or 13%, are located in the "core" zone (see Figure 76)
- Less than 3% of the study area's supply are fee parking for general use; these are exclusively 1-hour metered parking spaces on-street in central business corridors, about 12% of all on-street spaces

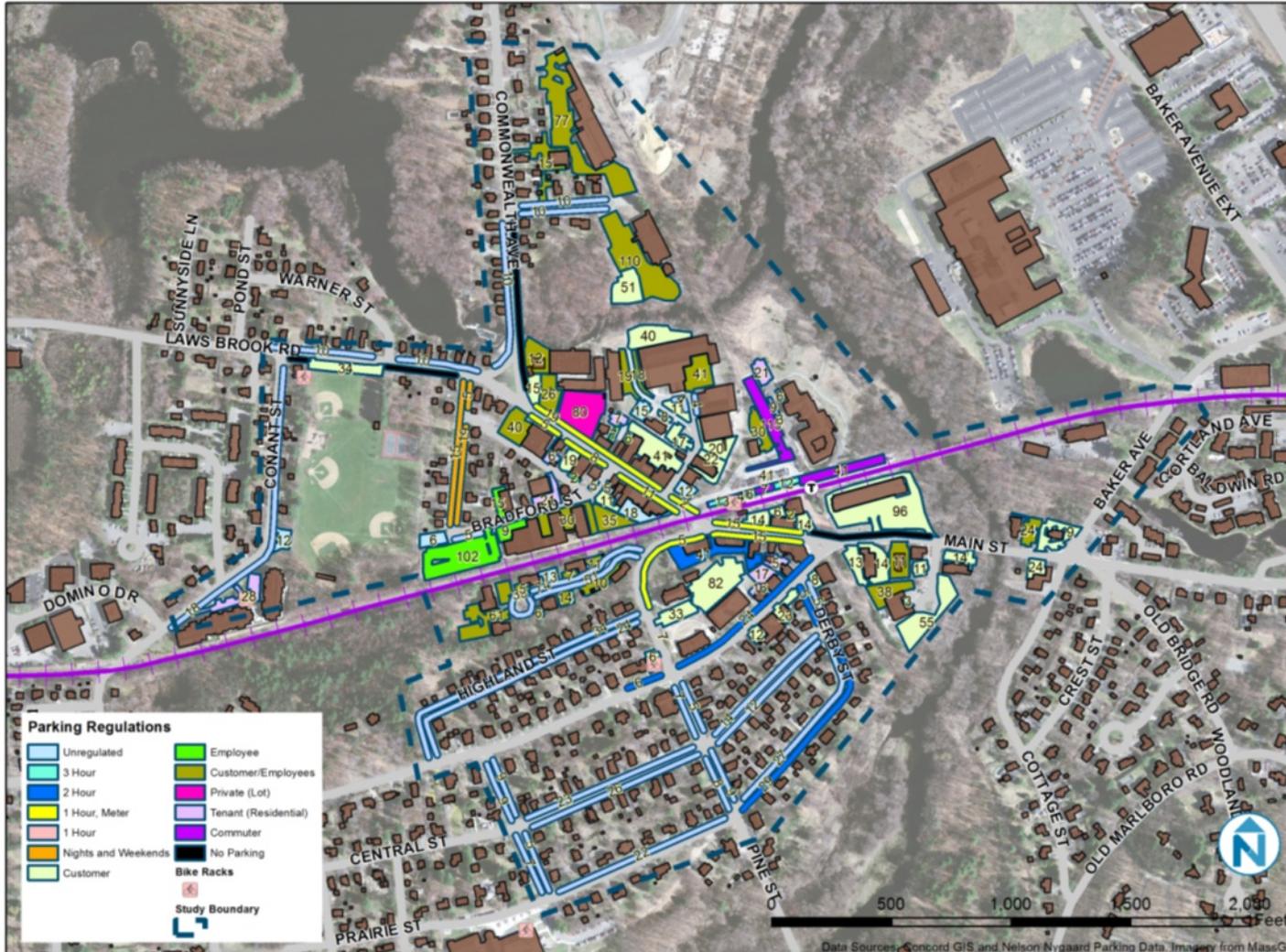
A summary of parking spaces in the West Concord study area is in Figure 9. A full parking inventory is depicted in the parking regulatory map on the following page (Figure 10).

Figure 9 Parking Inventory: West Concord

	Count	Percentage	% Restricted Access	% General Access
On-street	678	25%	1%	99%
Off-street	2,094	75%	86%	14%
Total	2,772		65%	35%

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Figure 10 Parking Supply and Regulations: West Concord



On-Street Parking

About three-quarters of the on-street parking in the West Concord study area is unregulated, meaning that anyone can park on-street without time limits. This includes many residential streets that have parking on one or both sides of the street. About one-quarter of on-street parking is restricted by time limits or pricing and time (Figure 11):

TIME: Many of the on-street spaces in West Concord are regulated by time restrictions. There are three types of restrictions – 1 hour, 2 hour, and Nights and Weekends Only. These spaces are time-regulated to encourage turnover for patrons of the shops and restaurants. Time-limited spaces, particularly the 1 and 2 hour spaces, are located in the heart of the central business corridors and are intended to allow ample time for shoppers and diners.

PRICING AND TIME: On-street parking spaces along Main Street, Church Street and Commonwealth Avenue are metered at a rate of \$0.50 per hour from 9am until 6pm Monday - Saturday. Spaces have a maximum time limit of 1 hour to encourage customer turnover. The meters offer the first 12 minutes free, activated by pushing a button on the meter, effectively making the price to park for an hour \$0.40, instead of the advertised \$0.50.

All meters are single-head, coin-operated meters that stand on individual posts. Meters are a digital model from McKay (Canada), purchased by the Town in 2003. The meters are in good condition, have very few problems, and are maintained by the Town Police Department staff. There are 80 meters in West Concord.

Other restrictions include 39 parking spaces along Maple Street that are Nights and Weekends Only. There is no parking by permit (residential, employee, or commuter) in West Concord.

Figure 11 On-street Parking Regulations: West Concord

Regulation	Supply	Percent
1 Hour, Metered	80	12%
2 hour	64	9%
Nights and Weekends Only	39	6%
Unregulated, except commuters	7	1%
Unregulated	488	72%
TOTAL	678	100%

Off-Street Parking

Off-street parking has been generally categorized in two ways to focus on who spaces are available to:

- *General access* parking is available for public use and may be owned by a public or private entity
- *Restricted access* parking is dedicated to a specific population, such as customers, tenants, or employees. Most off-street parking in West Concord (86%) is restricted access parking.

General and restricted access off-street parking can be further categorized into specific regulations (Figure 12) and into three main regulatory groupings: use, time, and pricing and time:

USE: A little over one-third of the off-street supply is restricted to customer-only parking for certain businesses or business clusters; another third of the supply is restricted to either employee or customer use, and 6% of the supply is employee use only. About 7% of the spaces are designated for residential tenants. In sum, 91% of the off-street parking in West Concord is restricted.

TIME: Some of the parking near the commuter rail station provides free spaces limited to three hours. Parking in the lot behind the businesses on Commonwealth Avenue provides some two hour parking at no charge.

PRICING AND TIME: No off-street parking in West Concord has time-limited priced parking.

Figure 12 Off-street Parking Regulations: West Concord

Regulation	Supply	Percent
2 hour	41	2%
3 hour	25	1%
Commuter	208	10%
Customer	726	37%
Customer/Employee	642	29%
Employee	141	6%
Residential (Tenant)	149	7%
Private	80	4%
Unregulated	82	4%
TOTAL	2,094	100%

Of all the off-street parking in West Concord, 94% is privately-owned and 6% is publicly-owned. The only Town of Concord owned off-street parking lots in West Concord include the three-hour spaces at the rail station, resident-only commuter spaces at the rail station, Church Street parking lot, and parking spaces at Rideout Playground.

Commuter Parking

West Concord has 208 dedicated parking spaces for commuters adjacent to the train station, compared to 92 spaces at the Concord Center station. There are 52 MBTA commuter spaces at the rail track, and 115 MBTA spaces perpendicular to the tracks. In between these spaces are 41 town permit commuter spaces, reserved by town residents. MBTA commuter spaces cost \$4 per day, paid in cash through a drop box at the station, and town permits, that cost \$75 for six months, available to town residents only.

Recreational Parking

West Concord's primary outdoor recreational destination is Rideout Playground on Laws Brook Road. The area includes one and a half basketball courts, three tennis courts, one baseball diamond, two softball fields, one little league field, a playground, and plenty of green grass. The immediate area surrounding the Playground is mostly single family residential homes, plus a nearby commercial area.

Parking for the Playground includes two off-street lots plus on-street parking. A lot on the north side of the Playground provides 34 spaces and a smaller lot on the southwest corner has 12 spaces. Immediately adjacent, there are 18 on-street spaces on Conant Street and 20 on-street spaces on Laws Brook Road. This is a total of 84 spaces surrounding the Playground.

PARKING UTILIZATION

Parking utilization counts provide a time series of typical parking demand for a typical day in an area. To complete these counts, individuals count parked cars in each on-street segment or lot at pre-determined time intervals in a study area. Land usage, regulation, pricing, and convenience can drastically impact how even adjacent parking assets are utilized. By compiling parking utilization comprehensively, you can begin to clearly identify patterns of high or low usage, the impact of regulations, and assess how much of the parking supply is utilized throughout the day.

The project team conducted parking utilization counts on a typical weekday and weekend day for both Concord Center/Thoreau Street Depot and West Concord. Weekday counts were conducted in mid-May 2012 on a Thursday, a generally busy weekday for shops and restaurants, and often when stores have longer hours of business to accommodate their patrons. The counts were purposely conducted on a day when Concord Academy was in session. Data collectors captured weekday parking demand for 14 hours, beginning at 7am and ending at 9pm, with counts every two hours. Data collection began in the early morning to identify if/when commuter and employee parking would fill capacity. In the evening, data was collected until 9pm to fully assess parking demand associated with the town's restaurants and other evening activities. Both sub-area weekend counts were conducted in mid-June 2012. Data collection began at 9am, since commuter activity is less prominent during the weekends, and ended at 5pm, as evening weekend evening parking demand was not identified as problematic by Town staff. In addition, the study area for the weekend counts is slightly smaller than the weekday study area, as activity is more concentrated in the heart of both commercial and recreational areas.

METHODOLOGY

It is important to note that the individuals collecting data collected each on-street segment and off-street lot at exact intervals. For example, if the Sudbury Road commuter lot was counted at 7:05AM in the first loop, then it was counted at 9:05AM in the second loop, etc. This consistency ensured data accuracy to help draw conclusions about trends within two-hour windows. The team coordinated in advance with the town planning, engineering, and police staff to ensure that there was no special events or construction that may influence parking utilization.

As a note, the weekend collections experienced a rain event in both sub-centers between 4:30pm and 5pm. Data collection was completed uninterrupted in the intervals around the event. However, it may have slightly impacted parking patterns for the 3pm-5pm and 5pm-7pm intervals, most notably around the recreational ball fields in both towns.

The series of charts on the following pages show the parking utilization profiles throughout the collection days in Concord Center and West Concord, respectively. They are displayed in a variety of sub-sets: the entire study area, particular blocks and lots, and core areas of demand. The red lines indicate "functional capacity" of parking, i.e. a vacancy of 15-percent on-street, or about 1 out of 8 on-street spaces is available and 90% for off-street lots, a recognized national standard of when a parking area is effectively full.

CONCORD CENTER PARKING UTILIZATION

KEY FINDINGS

- For both weekdays and weekends, less than 60% of the total parking capacity is utilized at all times
- Peak utilization occurs mid-day around the lunch hour
- There was nearly double the parking demand for typical weekday parking than for weekend parking
- Weekend on-street parking along Main and Thoreau Street was often over capacity
- Isolated parking challenges occur around the Concord Museum, Emerson Playground, and Concord Academy/Library/Emerson Umbrella
- Though the small lot behind the Visitor Center is in high demand, other centrally-located, general access off-street lots always had available spaces
- On-street metered parking demand spiked after 5pm (when the meters are free) while off-street parking peaked between 11am and 3pm

Weekday Utilization

Understanding how downtown parking is managed downtown requires being able to describe how parking facilities and on-street parking interact with each other throughout the course of a day. A chart of hourly utilization rates for one specific location is valuable, but seeing how that location behaves among others located nearby can reveal patterns and trends not evident in numbers alone. The lot which is completely full may be right around the corner from another lot that has plenty of availability at that same time.

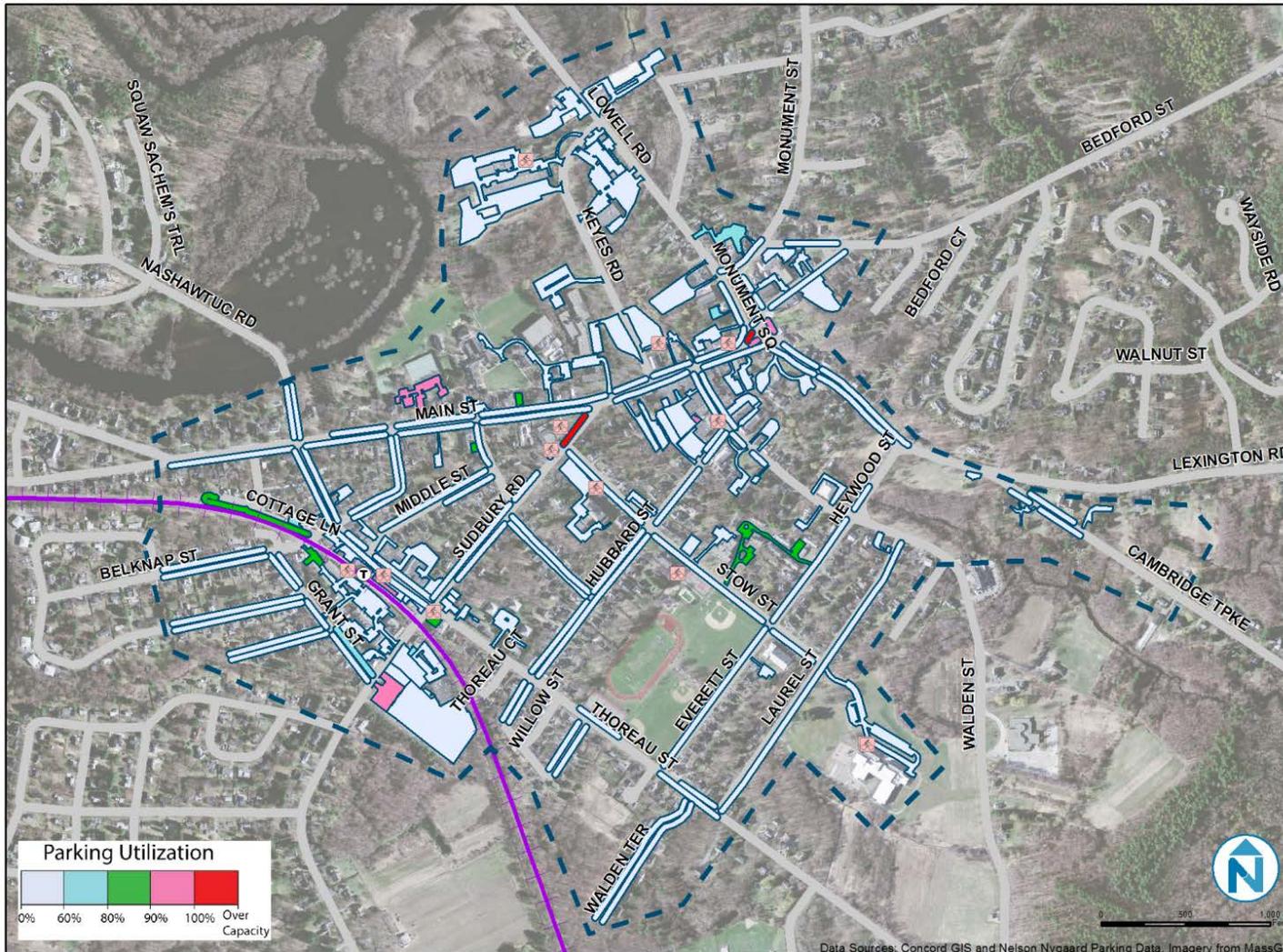
Using the utilization data, the consultant team developed a series of maps based on the parking inventory map above. Colors represent the percentage of spaces utilized at each location based on notable breaks used to evaluate the adequacy of a parking facility:

- “Cool” light blue/blue refers to 0-80% utilization, a point at which parking is considered underutilized
- “Ideal” green refers to 81-90% utilization
- “Warning” pink refers to over 91% utilization
- “Critical” red denotes parking beyond the marked capacity

Figure 13 - Figure 19 show time series utilization in two-hour increments, from 7am - 9am to 7pm - 9pm.

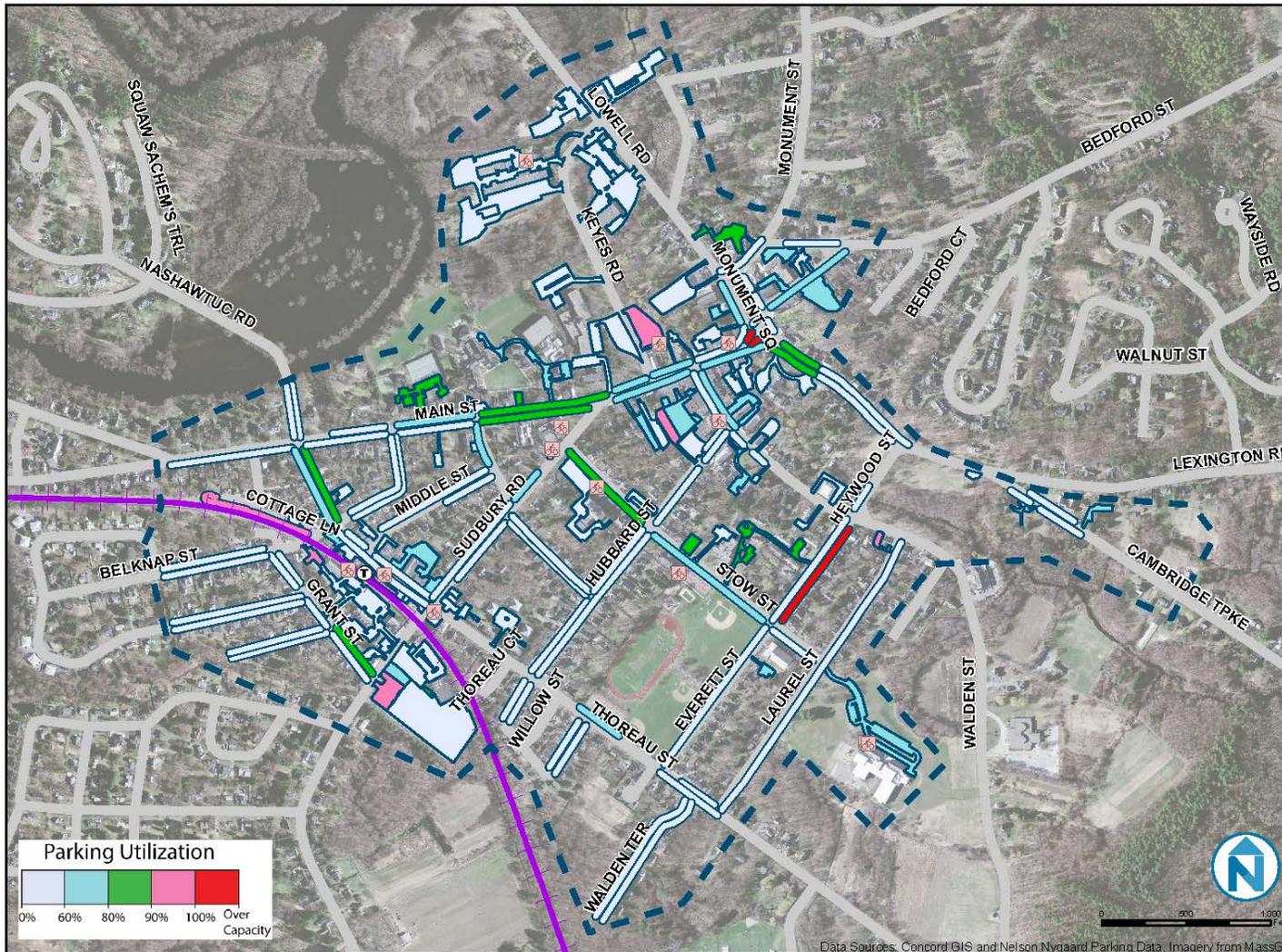
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Figure 13 Parking Utilization from 7am - 9am: Concord Center



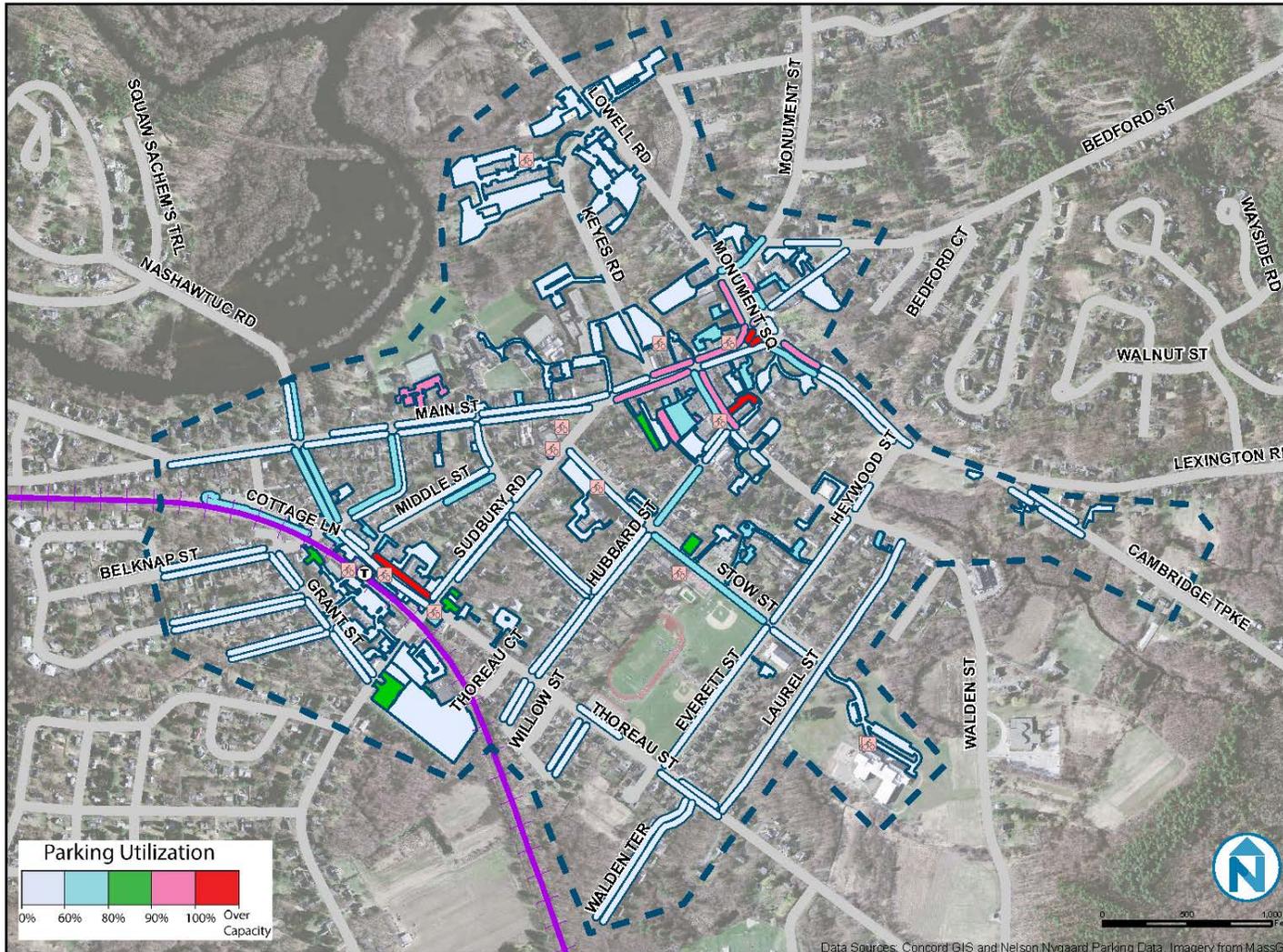
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Figure 15 Parking Utilization from 11am - 1pm: Concord Center



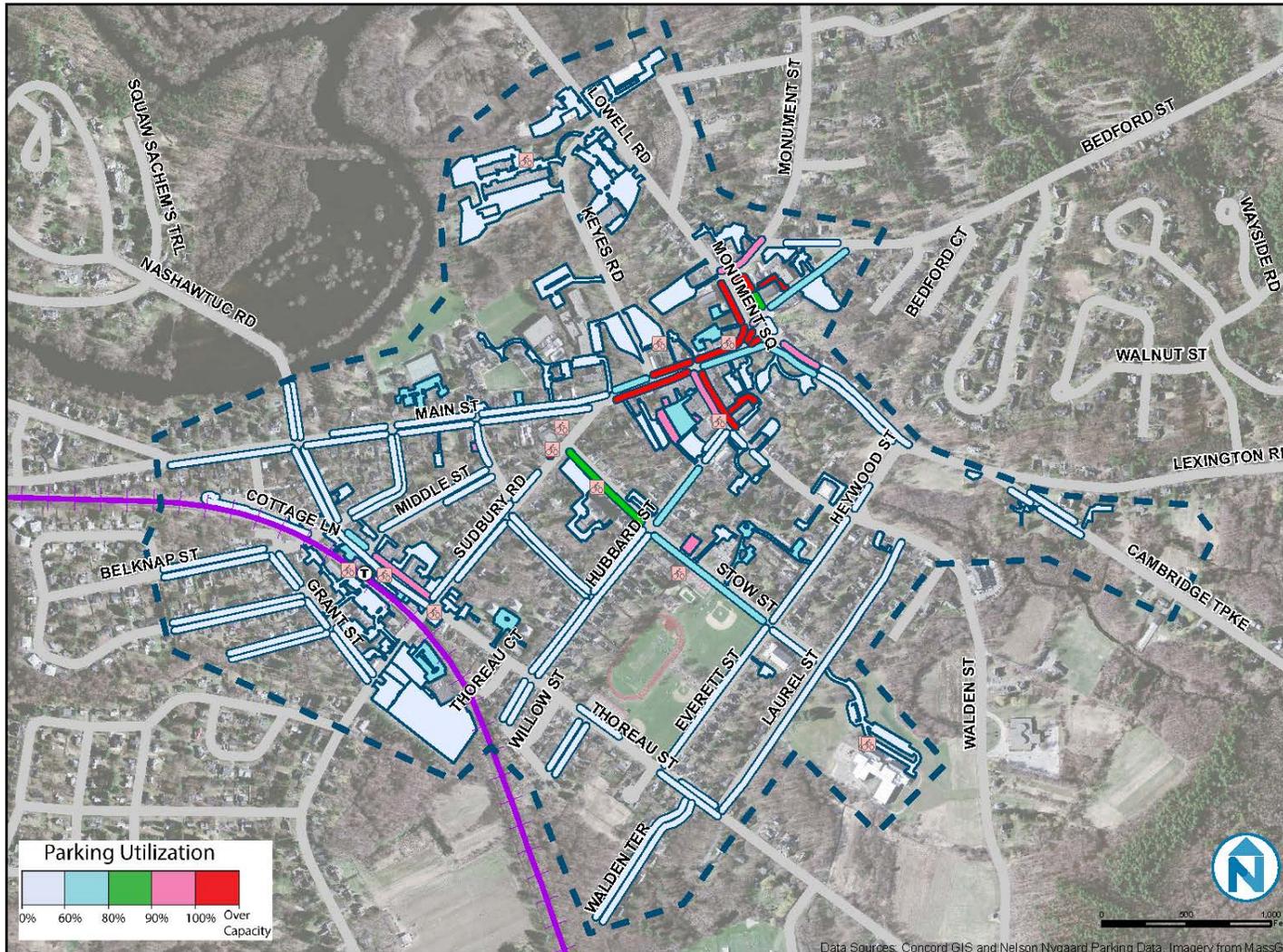
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Figure 18 Parking Utilization from 5pm - 7pm: Concord Center



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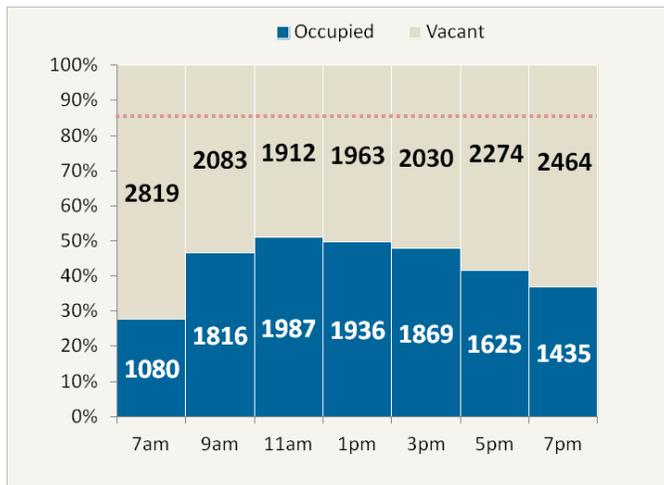
Figure 19 Parking Utilization from 7pm - 9pm: Concord Center



All Parking Spaces - Weekdays

As shown in Figure 20, of the 3,899 spaces within the Concord Center study area, the maximum overall utilization observed was 51% (1,987 spaces), occurred around lunch, between 11am and 1pm. This count included all inventoried spaces – both general and restricted access. Compared to the 85-percent optimal occupancy¹ (shown by the red dotted line), these results indicate that the study area as a whole has more than adequate parking supply to satisfy its demand – in fact, for all other intervals, the majority of the parking supply was empty.

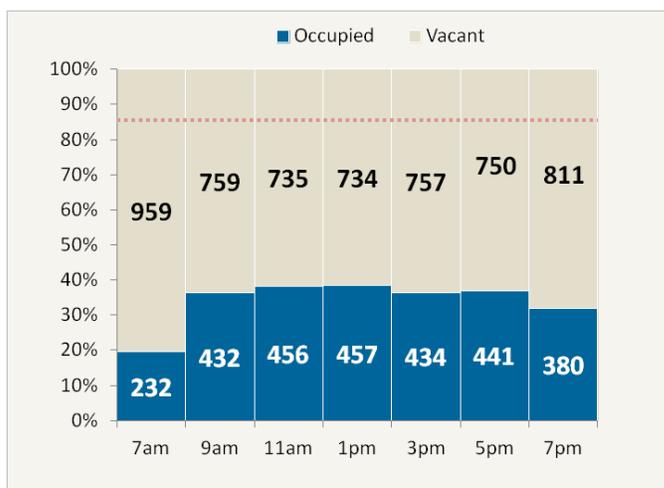
Figure 20 Weekday: All Spaces Demand in Concord Center



On-Street Parking Spaces - Weekdays

As shown in Figure 21, peak on-street utilization was 38% (457 occupied spaces) and occurred in the two intervals between 11am and 3pm. This left 750 vacant on-street spaces in the Center.

Figure 21 Weekday: On-Street Demand in Concord Center

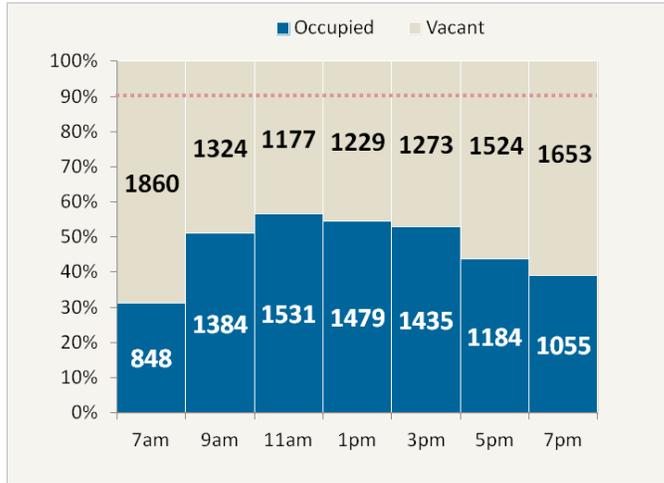


¹ Best national parking management practice suggests that parking is functionally full at 85% on-street (about one of every seven spaces is available) and 90% off-street.

Off-Street Parking Spaces - Weekdays

In Figure 22, the peak off-street utilization of 57% (1,531 spaces) occurred between 11am and 1pm, leaving over 1,100 vacant off-street spaces in the study area throughout the day.

Figure 22 Weekday: Off-Street Demand in Concord Center



General Access and Restricted Access - Weekdays

Generally accessible parking spaces have a lower utilization rate than restricted access spaces in Concord Center (Figure 23 and Figure 24). General access reach 48% utilization from 11am - 1pm, while restricted access spaces hit 53% full during the same time period. This is likely due to employees and customers parking in dedicated spaces for individual businesses, rather than on-street or in general access lots.

Figure 23 Weekday: General Access in Concord Center

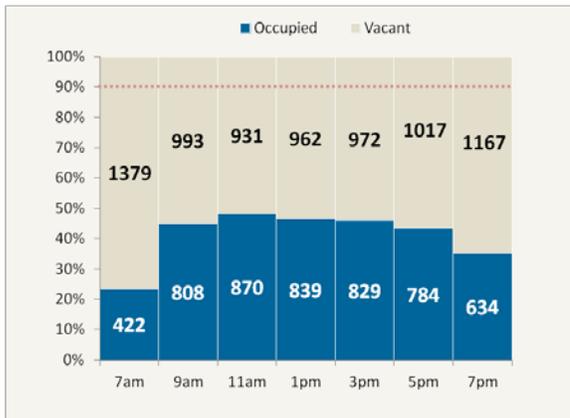
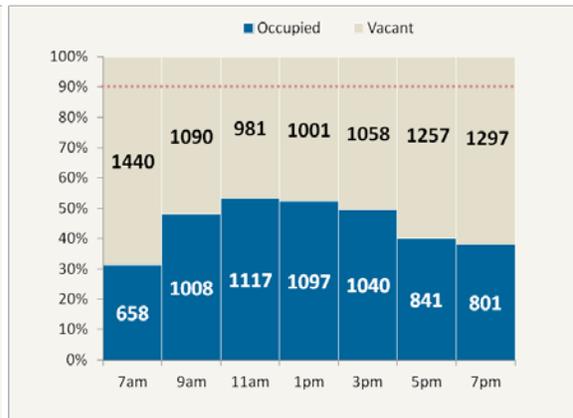


Figure 24 Weekday: Restricted Access in Concord Center



Private and Publicly Owned Off-Street Lots - Weekdays

On the weekdays in Concord Center, both private and public lots have about 50% utilization throughout the day. Publicly-owned lots peak at lunchtime over 60% full.

Figure 25 Weekday: Privately Owned Lots in Concord Center

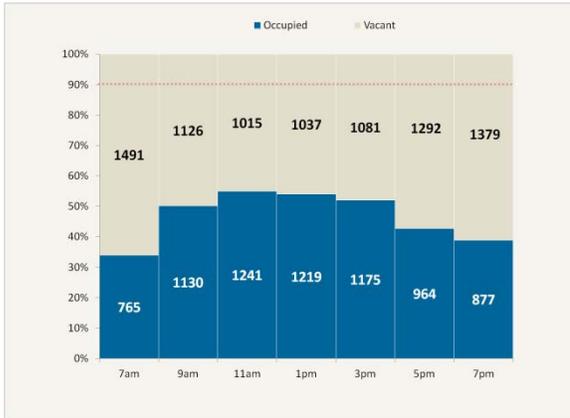
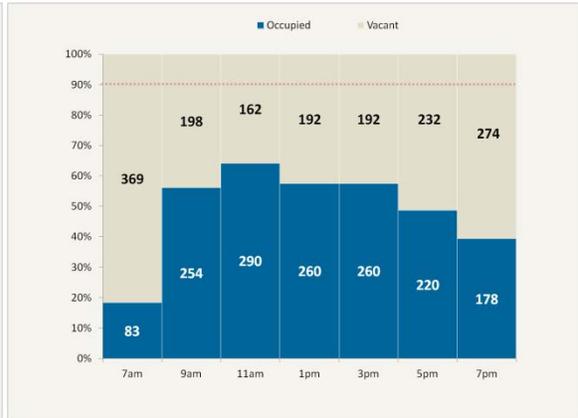


Figure 26 Weekday: Publicly Owned Lots in Concord Center



Core Areas

To better analyze the heart of activity in Concord Center, the team measured the practical walking boundaries from the corner of Main Street and Walden Street (Figure 28) and from the Thoreau Street Depot MBTA Station platform (Figure 30). These walking boundaries help to visualize a reasonable walking area around the centers of these nodes. For this purpose, these are called the "core areas" of activity.

Concord Center/Monument Square and Main Street

Figure 27 shows utilization in the 5 minute walking radius from the intersection of Main Street and Walden Street. At peak utilization between 11am and 1pm, 56% (905 spaces) of all spaces were occupied. On and off-street parking were similarly utilized throughout the day within the core area. While this core area had a greater utilization rate than in the study area generally, at least 709 spaces were available throughout the day.

Figure 27 Weekday: Core Area, Concord Center

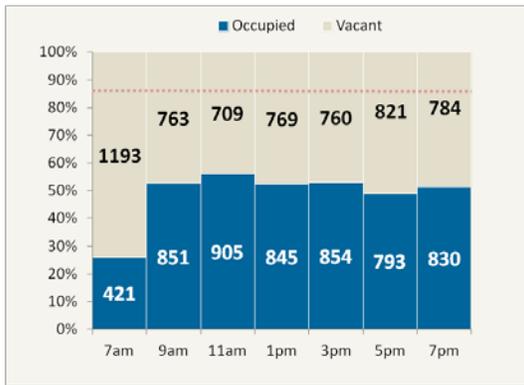


Figure 28 Core Area: Concord Center



Thoreau Street Depot

The parking around the Concord commuter rail station reaches a peak utilization of 54% around lunchtime. The rest of the day, half or more of the spaces within a practical walk of the station are available.

Figure 29 Weekday: Core Area, Thoreau Street Depot

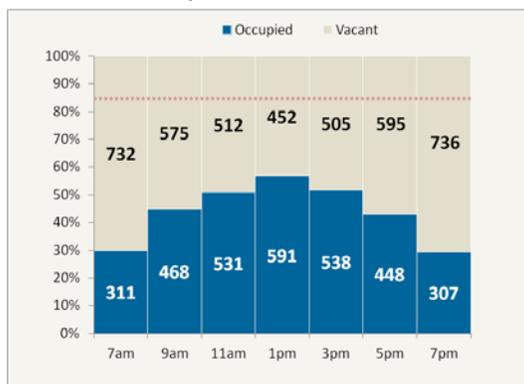


Figure 30 Core Area: Thoreau Street Depot



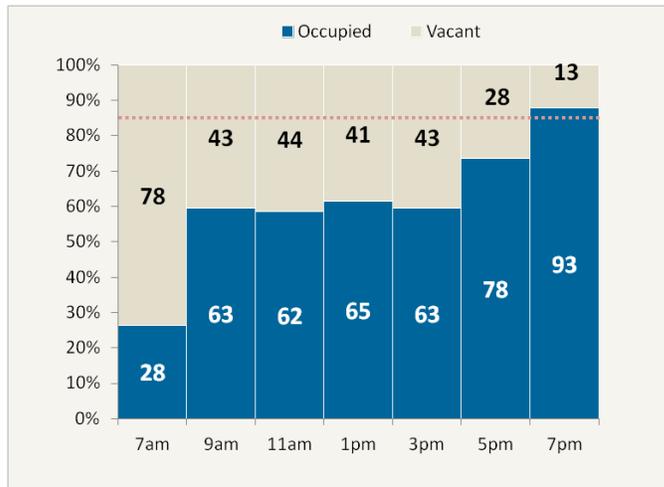
Focus Areas

Although the overall utilization of the entire study area hovered around 50-percent for midday peak parking, demand is not uniform throughout the study area. There are pockets of high-demand within Concord Center where parking utilization is substantially higher. These include metered parking spaces, general access parking lots, Monument Square time-limited on-street parking, commuter parking, and parking for Emerson Playground.

On-Street Metered Parking

Most visitors that come to Concord Center arrive to patronize the shops along Main and Walden Streets. Metered parking spaces (Figure 31) along these two roads receive significant usage, particularly after the time/payment restrictions lift at 6pm. During the weekday collection, many of these assets were at or near capacity throughout the day.

Figure 31 Weekday: Main and Walden Streets Metered On-Street Parking



General Access Parking Lots

There are publicly-owned parking lots in Concord Center that are completely available for all-day, free general access parking. These lots are the most visible lots that directly serve the downtown district. The two Keyes Road lots are the most obvious long-term parking lots with no time limits or pricing. Almost adjacent to Keyes Road is the 38-space lot behind Vanderhoof's, accessed by Monument Square. This lot offers free, two-hour parking. Another lot, the Walden Lot, is signed for general access, two-hour parking; however, the last two rows is not enforced for two-hour parking. It is known locally that time limits for these spaces are not enforced and town staff indicated that they are heavily utilized by employees.

Observed utilization in these general access lots shows several patterns (Figure 32 - Figure 39).

- The eastern half of the Keyes Road Lot is more heavily utilized than the right side, likely because the lot is a closer walk to Concord Center destinations
- The back two rows of the Walden Lot is heavily utilized, much more so than the front of the lot

- Availability exists in the Keyes Road Lot (western half) and the 2-hour Walden Lot for short and long-term needs

Figure 32 Weekday: Keyes Road Lot (western side)

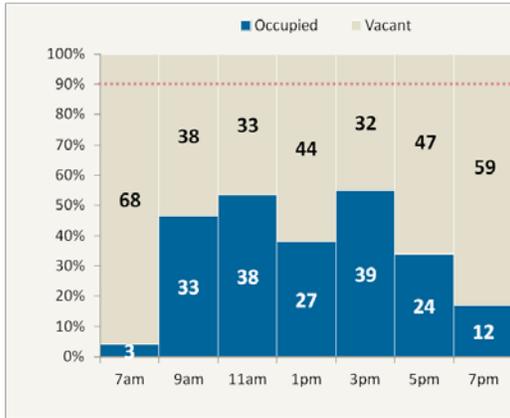


Figure 33 Map of Keyes Road Lots



Figure 34 Weekday: Keyes Road Lot (eastern side)

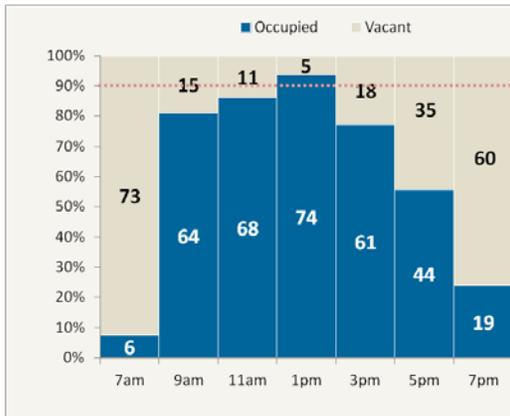


Figure 35 Weekday: Lot Behind Vanderhoof's (2 hour)

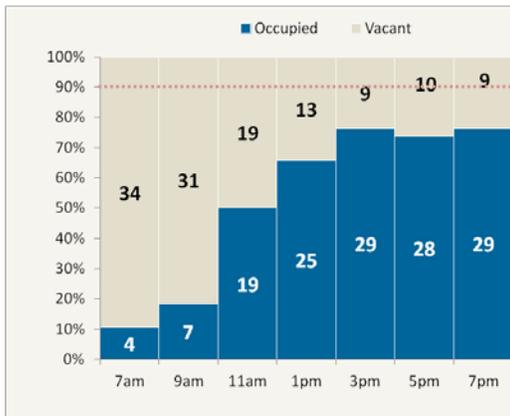


Figure 36 Map of Vanderhoof's Lot

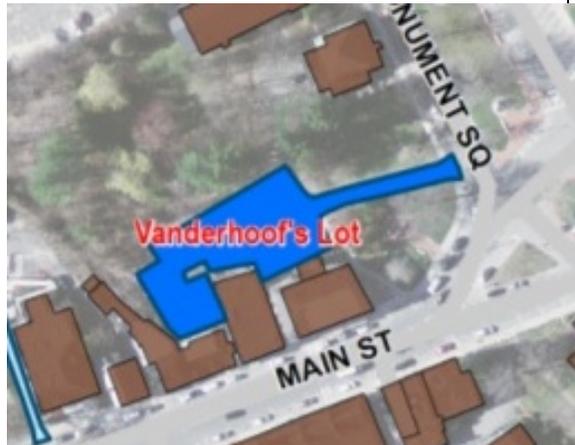


Figure 37 Weekday: Walden Lot (2-hour enforced, front)

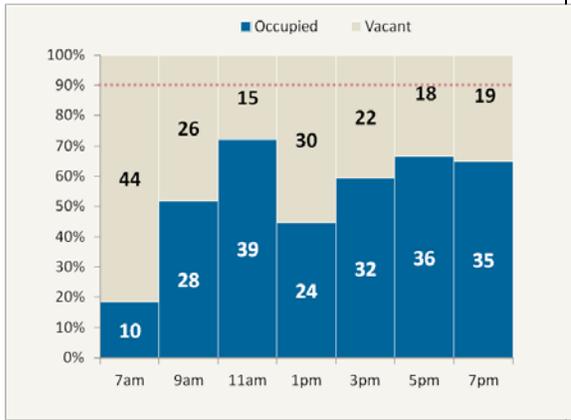
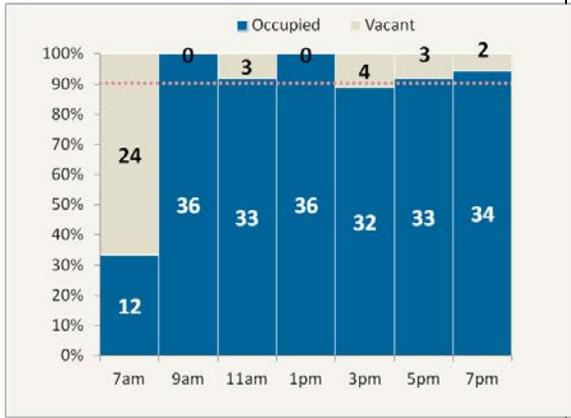


Figure 38 Map of Walden Lots



Figure 39 Weekday: Walden Lot (Back Two Rows)



Time-Limited Parking at Monument Square

While on-street parking on the whole was never greater than 40% utilized, time-limited on-street parking assets in Monument Square were typically between 60%-100% capacity throughout the day, particularly in the evening.

Time-limited parking at Monument Square includes on-street spaces at Monument Square, in front of the Colonial Inn, and on Bedford Street.

Figure 40 Weekday: Monument Square On-Street Time-Limited Parking

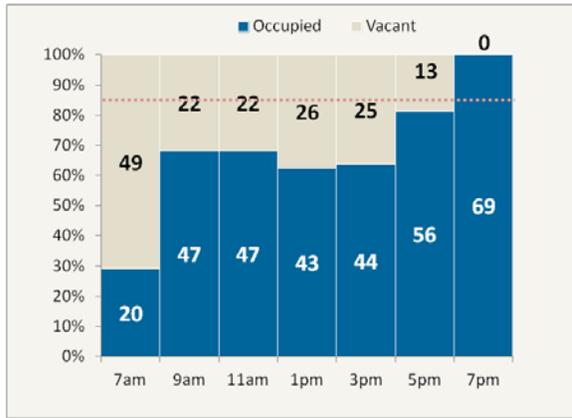


Figure 41 Map of Monument Square On-Street Time-Limited Parking



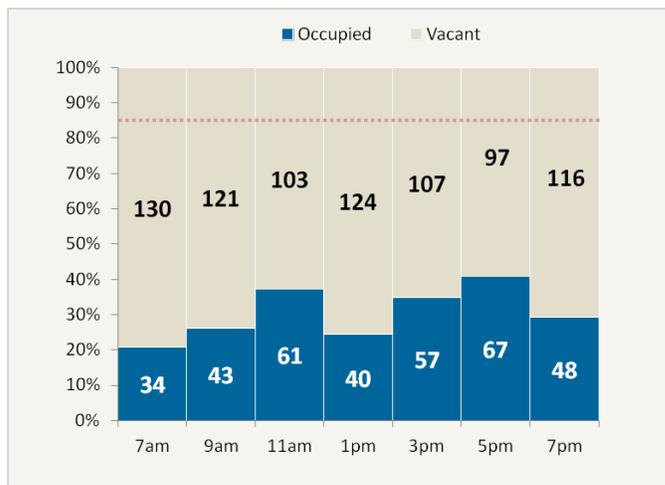
Commuter Parking

The commuter parking in Concord Center is in high demand. Concord Center’s commuter lots are located on private property and are essentially unregulated lots allowing for free, all-day parking. Due to recent implementation of pay parking (and increased rates) for lots in nearby commuter communities, notably Acton and West Concord, it is suspected that commuters from these communities are utilizing the Concord Center Station lots. Between 7am and 7pm, space is at a premium in the three commuter lots.

Emerson Playground

Parking near Emerson playground bordered by Thoreau, Stow, and Everett Streets is unregulated, except parts of Thoreau and Stow Street are No Parking zones. These spots were never more than 40% utilized, with the highest usages occurring at 11 am and 5 pm.

Figure 42 Weekday Parking near Emerson Playground



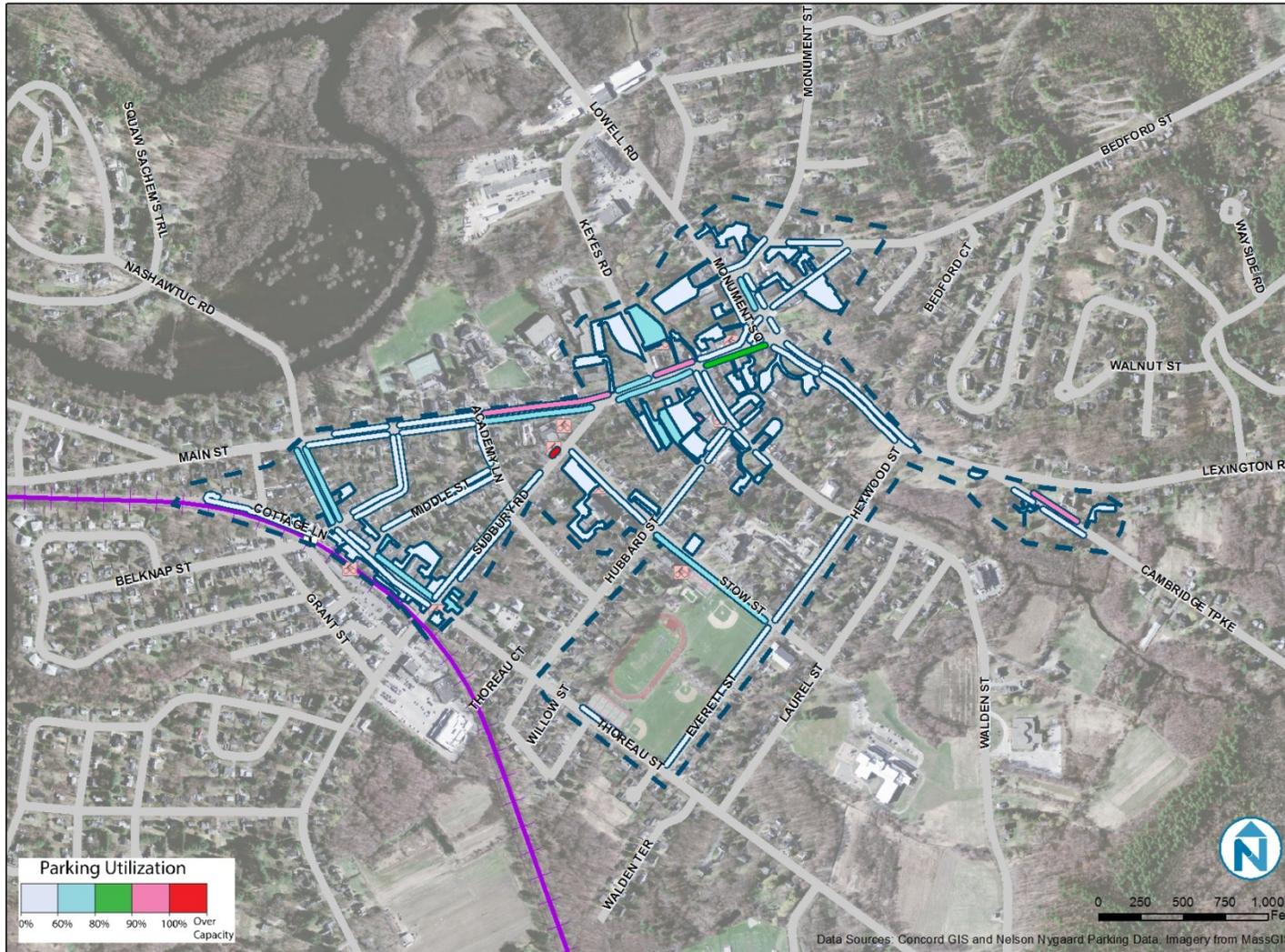
Weekend Utilization

Weekend demand was generally much lower than weekday demand with a peak utilization of 33% (696 spaces) between 1pm-3pm. Prime on-street metered and time limited assets along Thoreau, Walden, and Main Street and within Monument Square were often at or near capacity (see previous section) however the vast majority of on and off-street parking had ample available parking throughout the day. Of the large, general access lots, the Visitors Center Lot was over 60% capacity between 9am and 3pm and the Walden Street lot was above 60% capacity between 1pm and 3pm. Otherwise, no general access lot recorded more than 60% occupancy.

Utilization patterns are displayed in maps in Figure 43 to Figure 47.

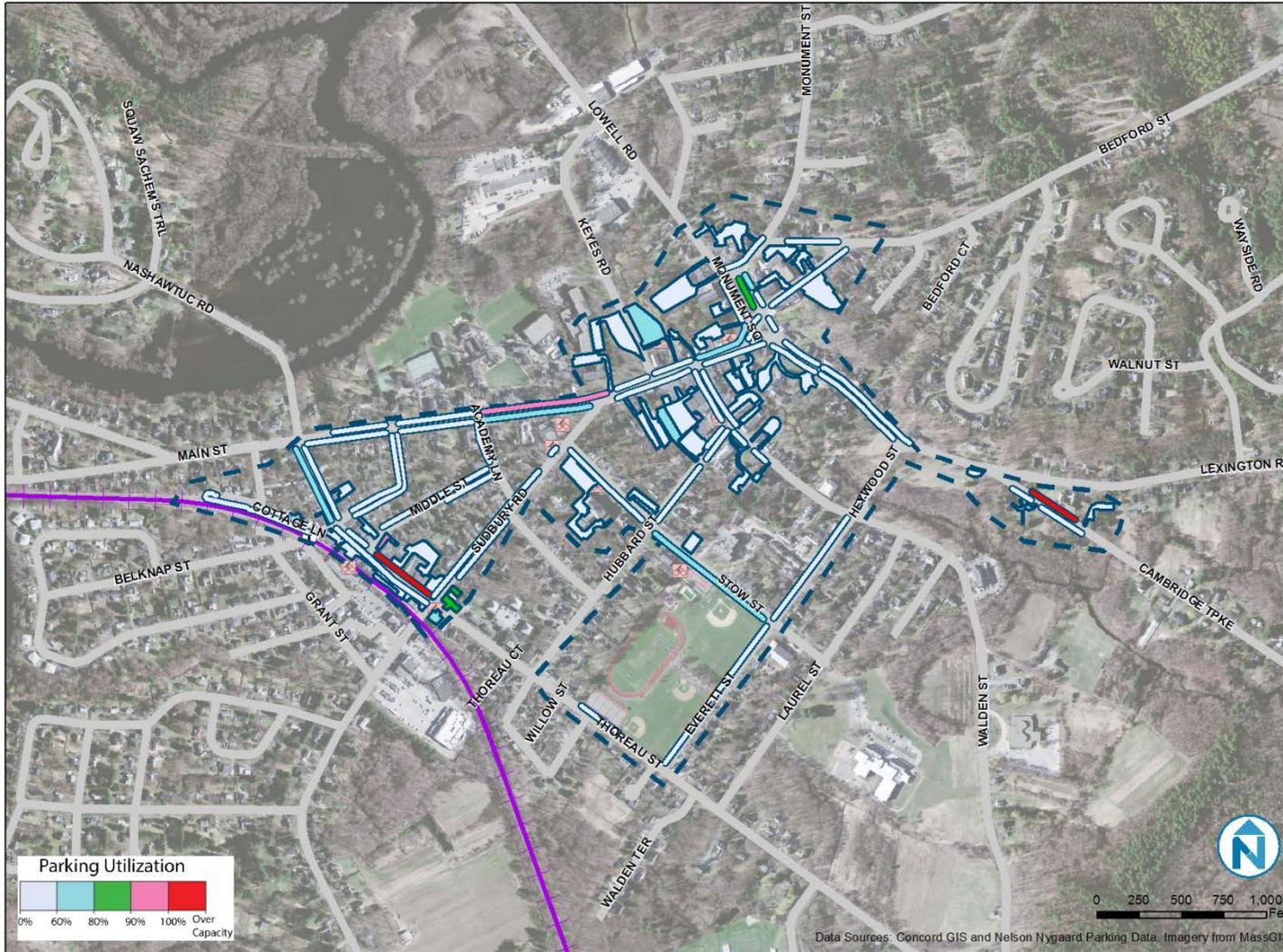
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 43 Weekend Parking Utilization from 9am - 11am: Concord Center



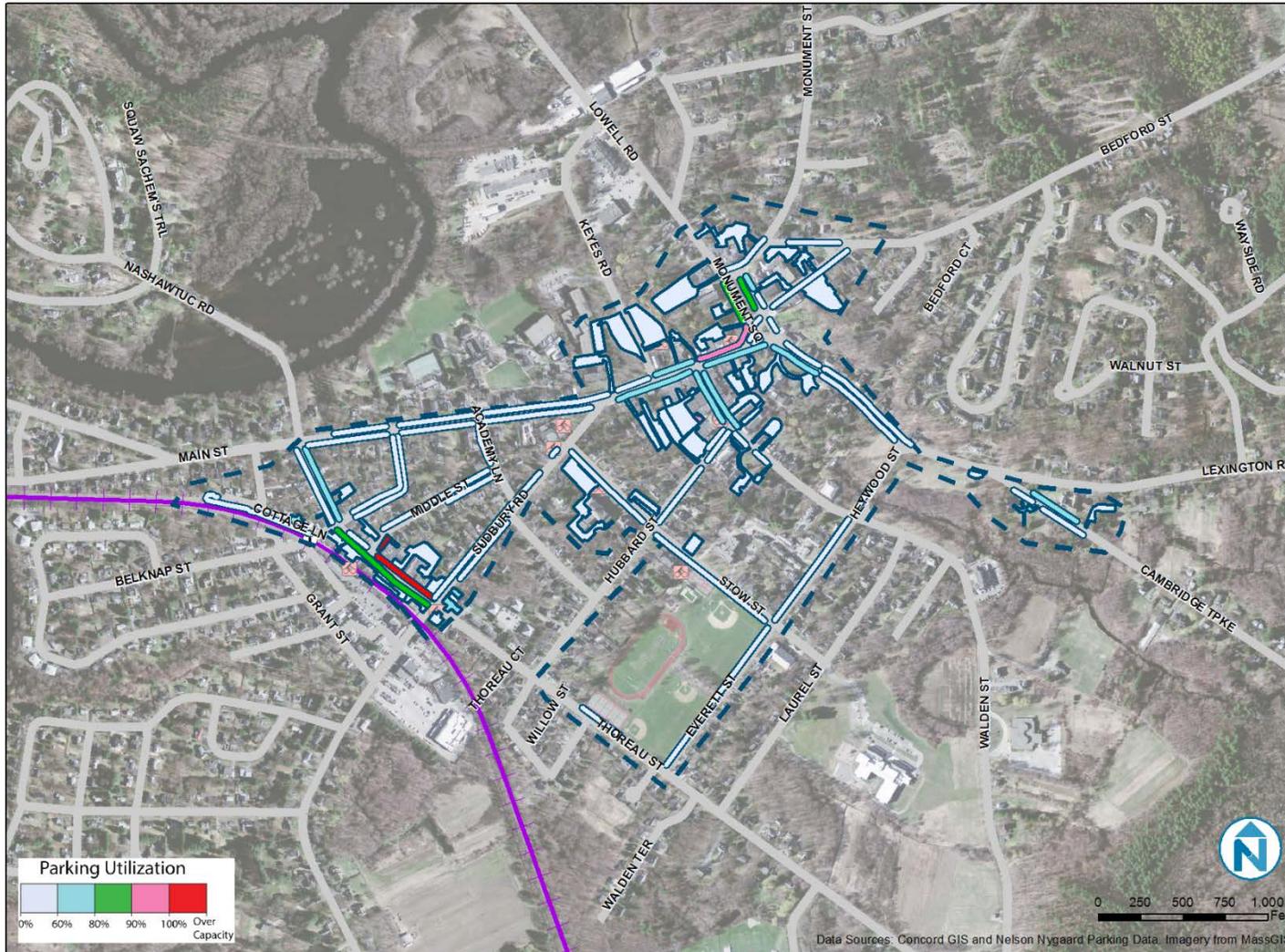
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 44 Weekend Parking Utilization from 11am - 1pm: Concord Center



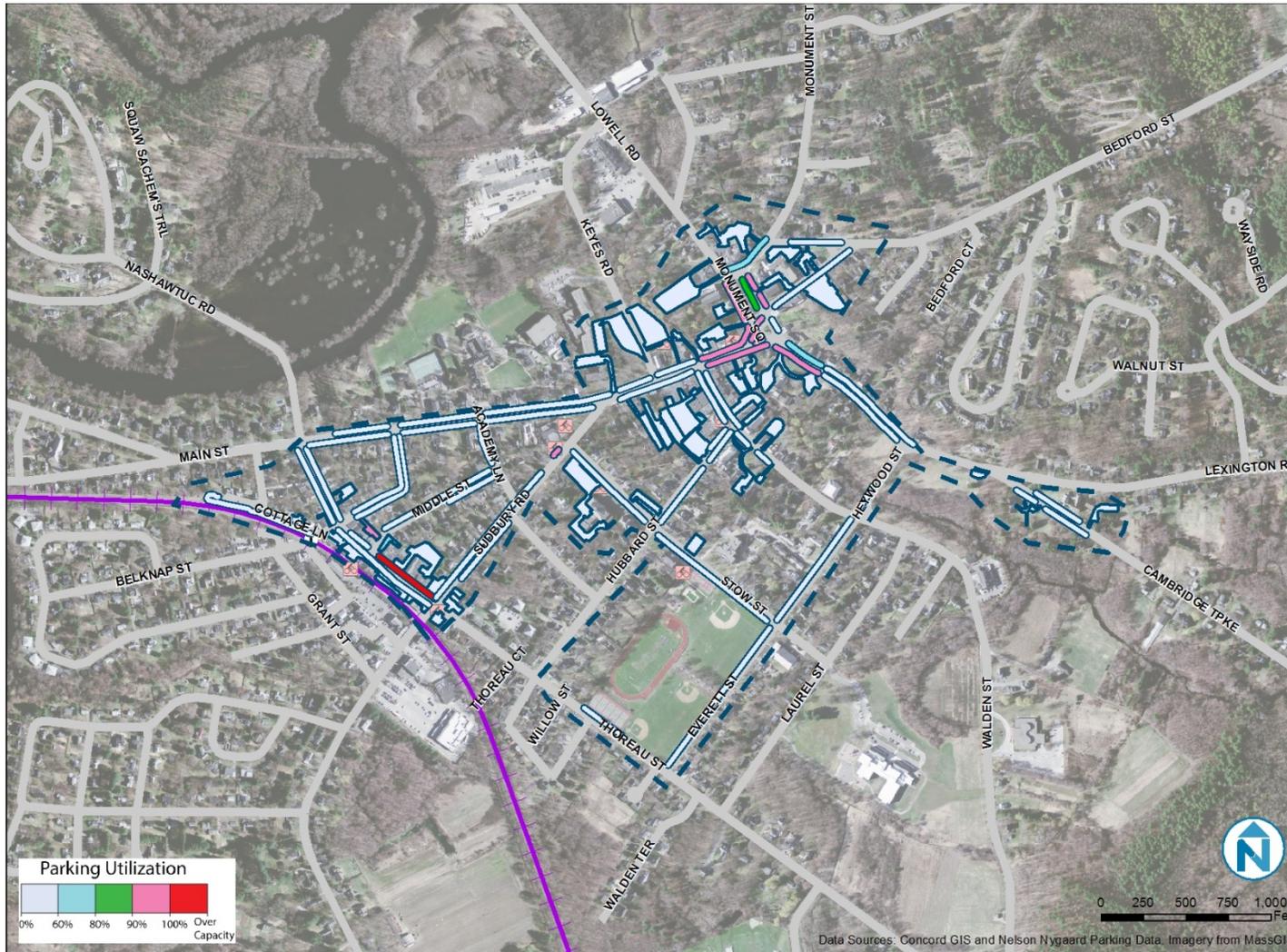
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 46 Weekend Parking Utilization from 3pm - 5pm: Concord Center



CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

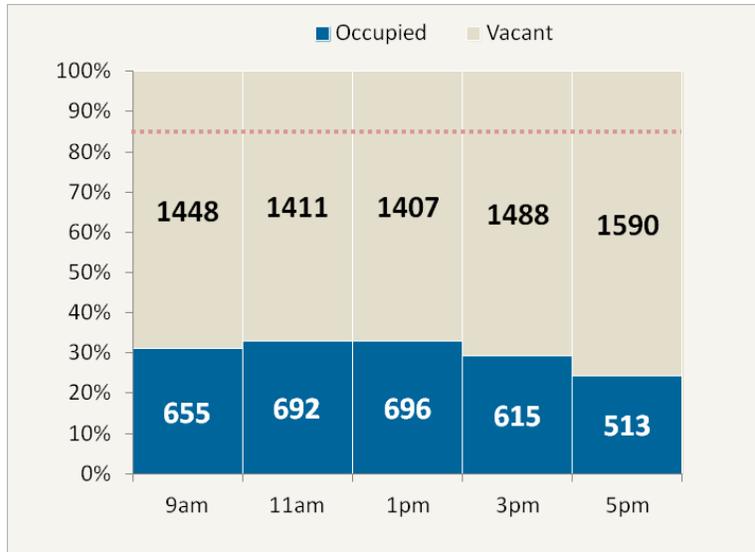
Figure 47 Weekend Parking Utilization from 5pm - 7pm: Concord Center



All Parking Spaces - Weekends

As shown in Figure 48, of all 2,103 spaces in the Concord Center weekend study area, the maximum utilization was 33% (696 spaces), which occurred between 1pm and 3pm. Compared to the 85-percent optimal occupancy (shown by the red dotted line), these results indicate that the study area has more than sufficient parking supply to satisfy its demand.

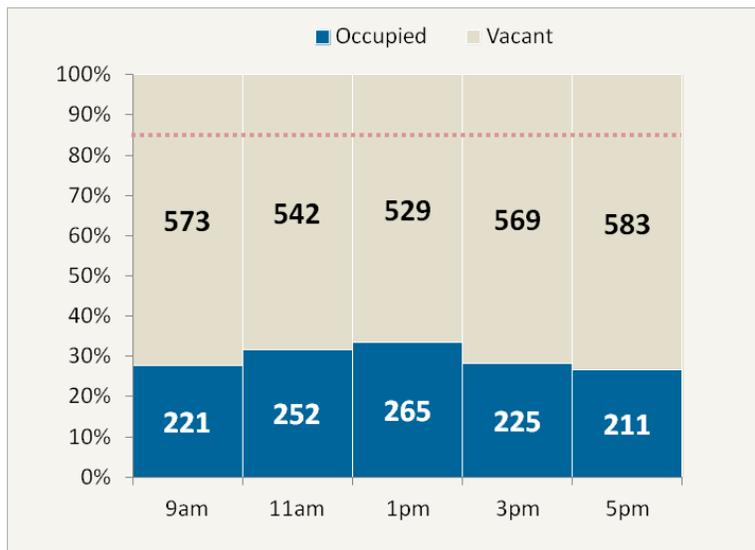
Figure 48 Weekend: All Spaces Demand in Concord Center



All On-Street Spaces - Weekends

As shown in Figure 49, peak on-street utilization was one-third occupied (265 occupied spaces) and occurred in the two intervals between 1pm and 3pm. This left about 540 vacant on-street spaces in the study area throughout the day.

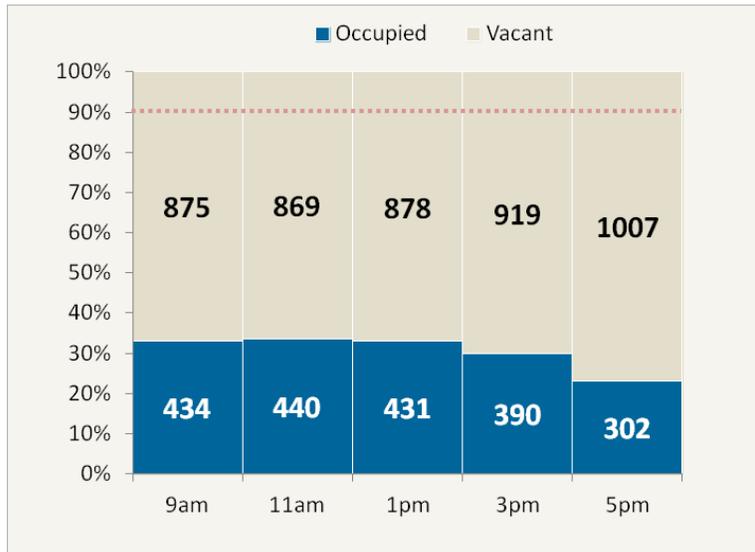
Figure 49 Weekend: On-Street Demand in Concord Center



All Off-Street Spaces - Weekends

In Figure 50, the peak off-street utilization of 34% (440 spaces) occurred between 11am and 1pm, leaving at least 869 vacant off-street spaces in the study area throughout the day.

Figure 50 Weekend: Off-Street Demand in Concord Center



General Access and Restricted Access - Weekends

On the weekend, generally accessible parking spaces have a higher utilization rate than restricted access spaces in Concord Center (Figure 23 and Figure 24). General access reach 34% utilization from 1pm - 3pm, while restricted access spaces reach a peak of 34% utilization in the morning. General access parking spaces likely have a higher utilization from the influx of weekend visitors and tourists that park on-street and in the general access parking lots.

Figure 51 Weekend: General Access in Concord Center

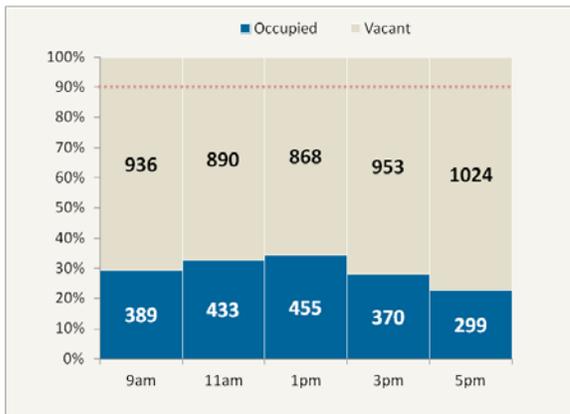
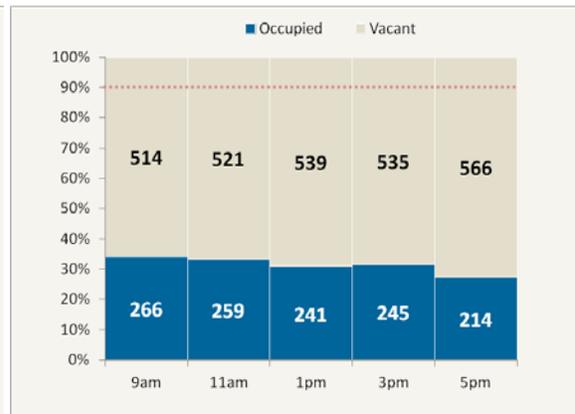


Figure 52 Weekend: Restricted Access in Concord Center

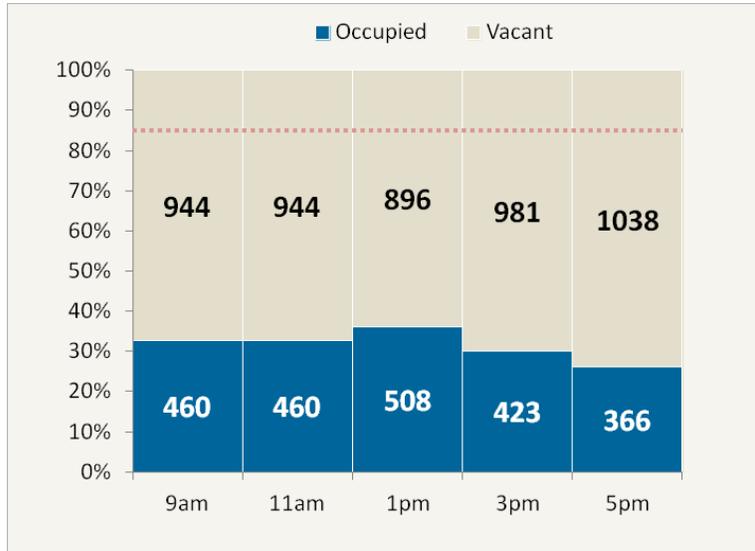


Core Areas

Concord Center/Monument Square and Main Street

Within a practical walking distance in any direction from Monument Square, substantial parking remains available on the weekend (Figure 53). At peak (1pm), on- and off-street parking is 36% full.

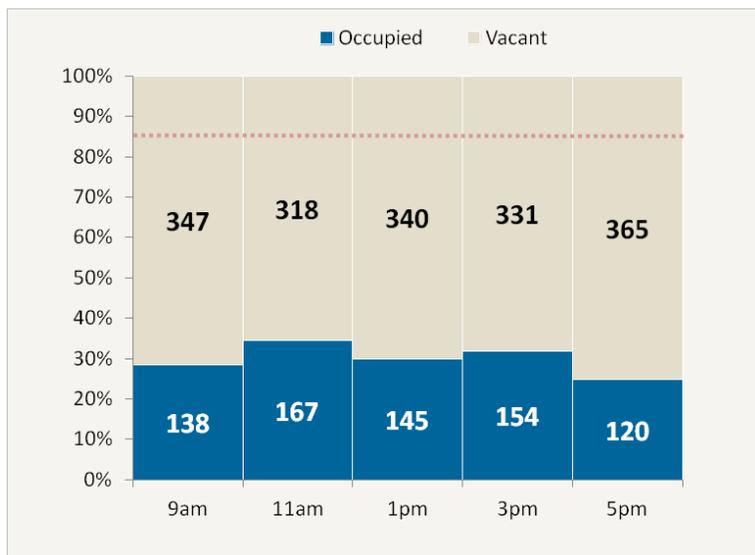
Figure 53 Weekend: Core Area, Concord Center



Thoreau Street Depot

Within a five-minute walking distance from the Concord Center commuter rail station, plenty of parking remains available on the weekend (Figure 54). At peak, 11am, over 300 spaces remain available. This is likely because the dedicated commuter spaces are not heavily used on weekends.

Figure 54 Weekend: Core Area, Thoreau Street Depot



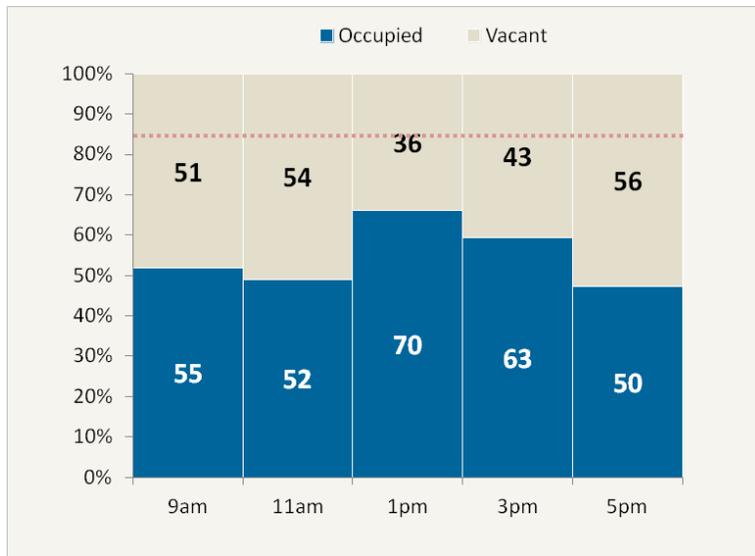
Focus Areas

Although at peak, parking in Concord Center is utilized by one-third, there are particular pockets of activity on the weekends. This include the Keyes Road lots, the Walden Lot, and metered parking on Main Street.

On-Street Metered Parking

Weekend visitors will park on-street for shopping and errands, and are limited to a one-hour stay. Metered parking on Main and Walden Streets experiences activity throughout the day, particularly around lunchtime from 1pm - 3pm. Peak utilization hits 66%, leaving 36 on-street metered spaces available.

Figure 55 Weekend: Focus Area, Metered Parking in Concord Center



General Access Parking Lots

The primary lots in Concord Center, the Keyes Road lots, the lot behind Vanderhoof's, and the Walden Lot, are available for longer-term public parking. As noted previously, the back two rows in the Walden Lot are used by employees for all day parking, although they are signed two-hour parking. On the weekend, parking utilization observations indicate that there is plenty of capacity available in general access lots in Concord Center.

CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
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Figure 56 Weekend: Keyes Road Lot (western side)

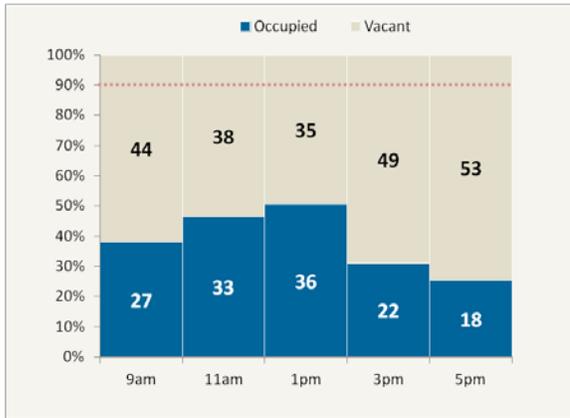


Figure 57 Weekend: Keyes Road Lot (eastern side)

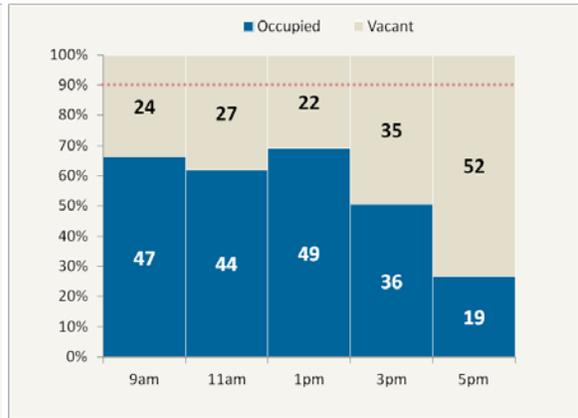


Figure 58 Weekend: Two-Hour Lot behind Vanderhoof's

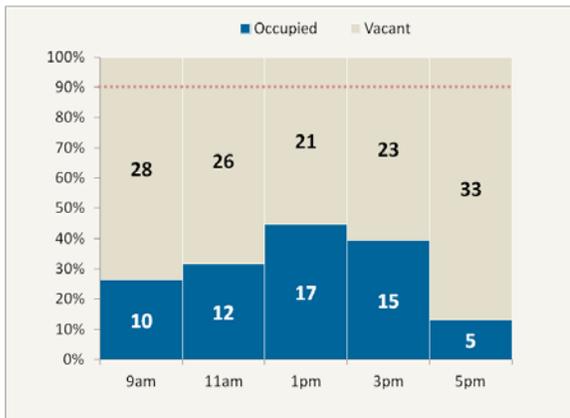


Figure 59 Weekend: Walden Lot (2-hour, enforced, front)

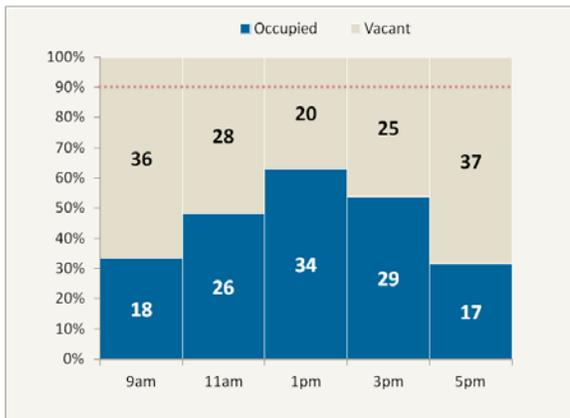
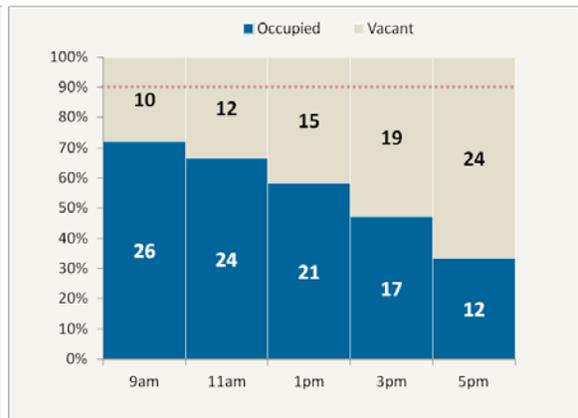


Figure 60 Weekend: Walden Lot (Back Two Rows)



WEST CONCORD PARKING UTILIZATION

KEY FINDINGS

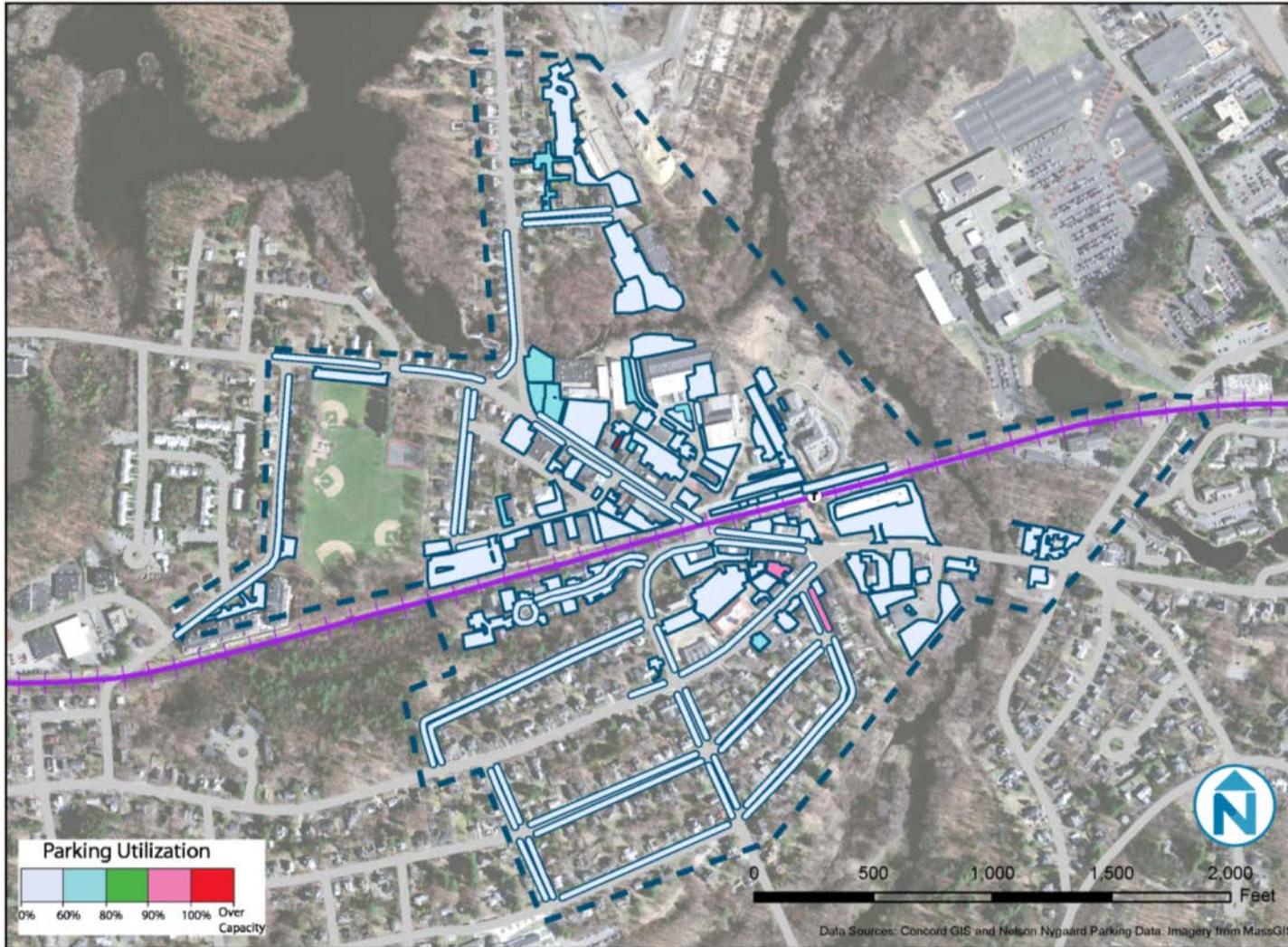
- For both weekdays and weekends, less than 40% of the total parking capacity is utilized at all times
- Peak utilization occurs mid-day around lunch hour on the weekdays and in the morning on weekends
- MBTA commuter parking is underutilized, while Town resident commuter parking is heavily utilized
- Off-street lots behind popular businesses are utilized heavily, while free parking spaces within one block away are not utilized
- On-street metered parking demand spiked after 5pm (when the meters are free)

Weekday Utilization

The same methodology for parking utilization was applied in West Concord as in Concord Center. Figure 61 - Figure 67 show the time series utilization in two-hour increments, from 7am - 9am to 7pm - 9pm.

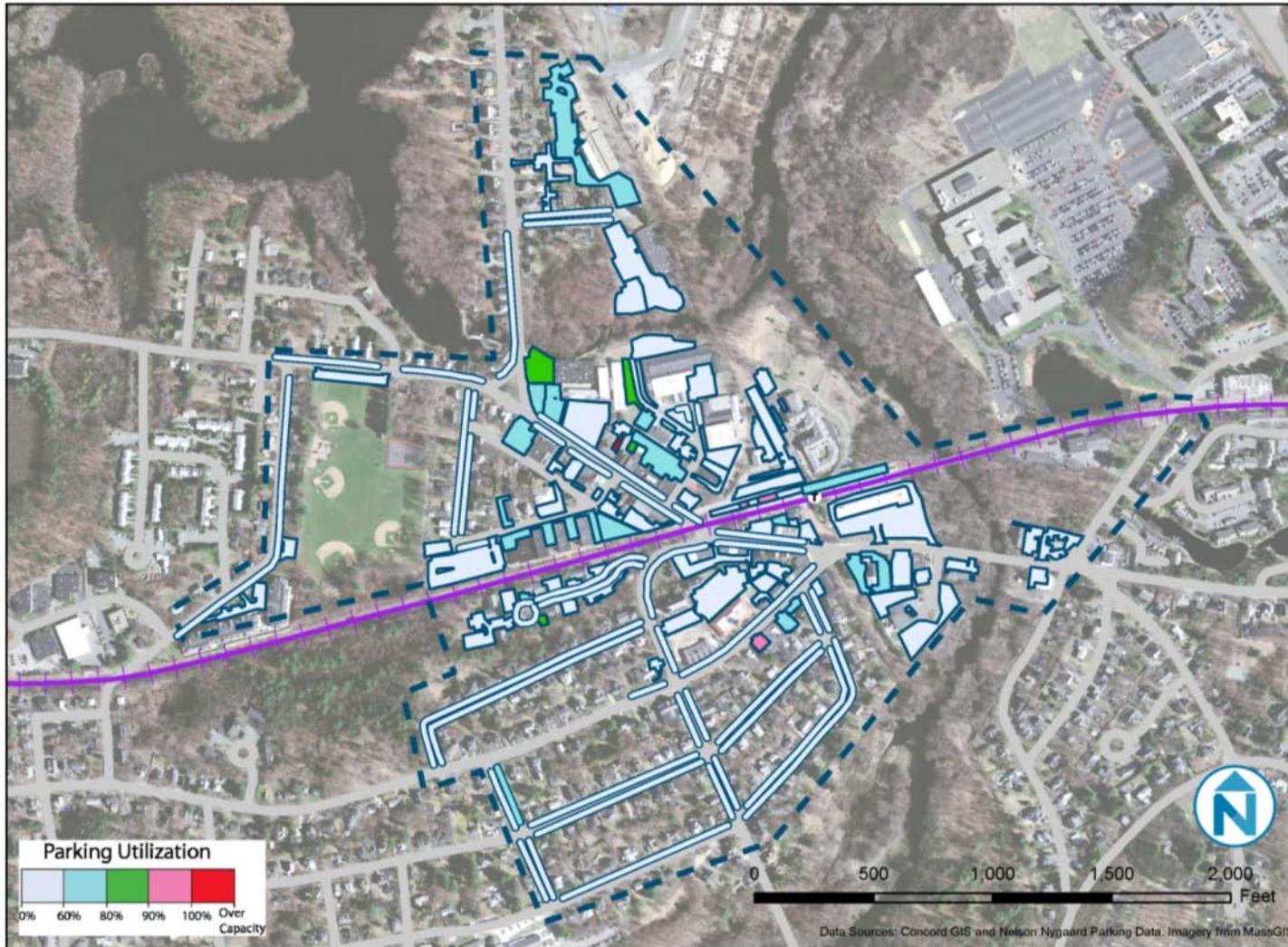
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 61 Weekday Parking Utilization from 7am - 9am: West Concord



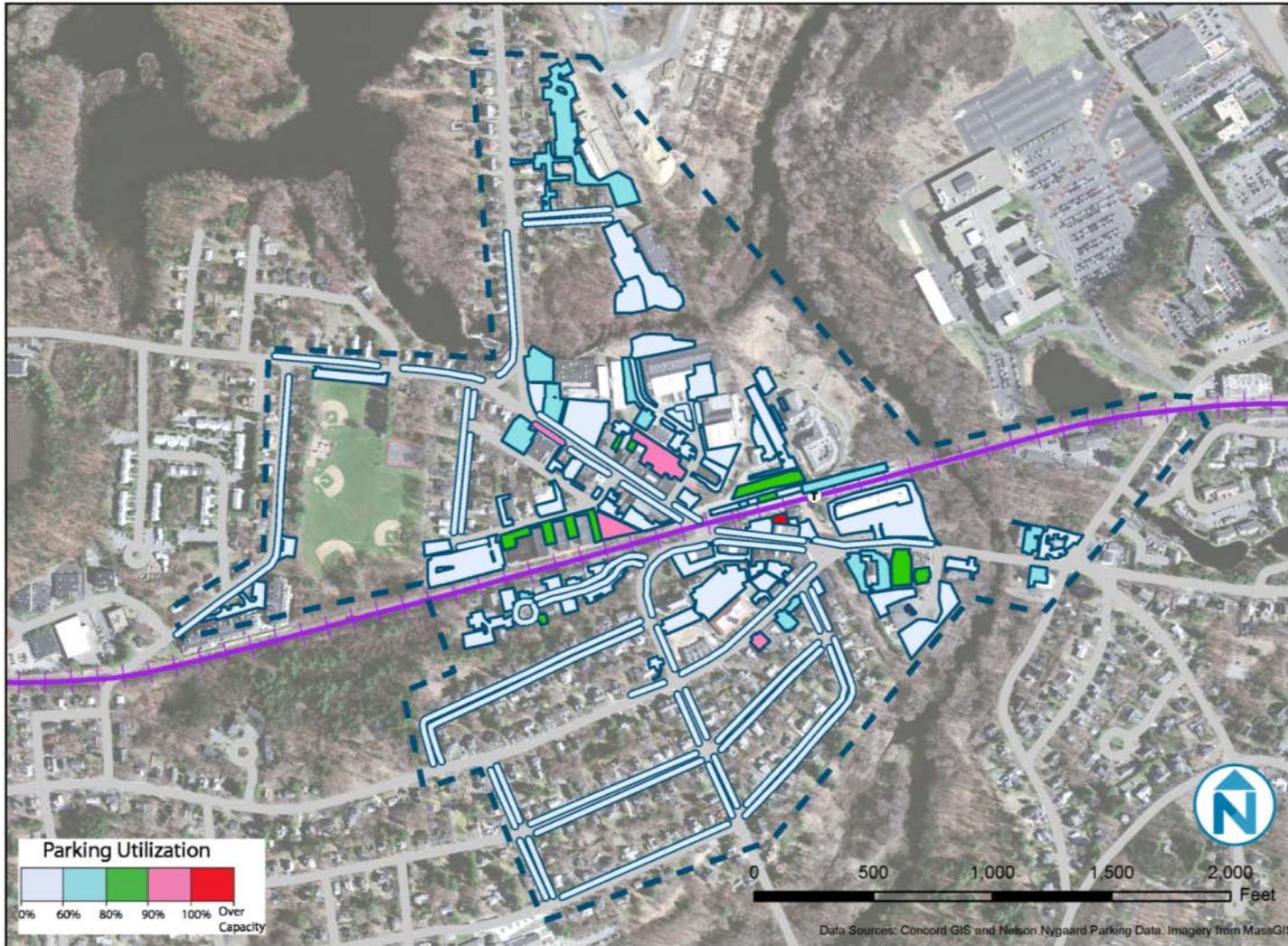
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
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Figure 62 Weekday Parking Utilization from 9am - 11am: West Concord



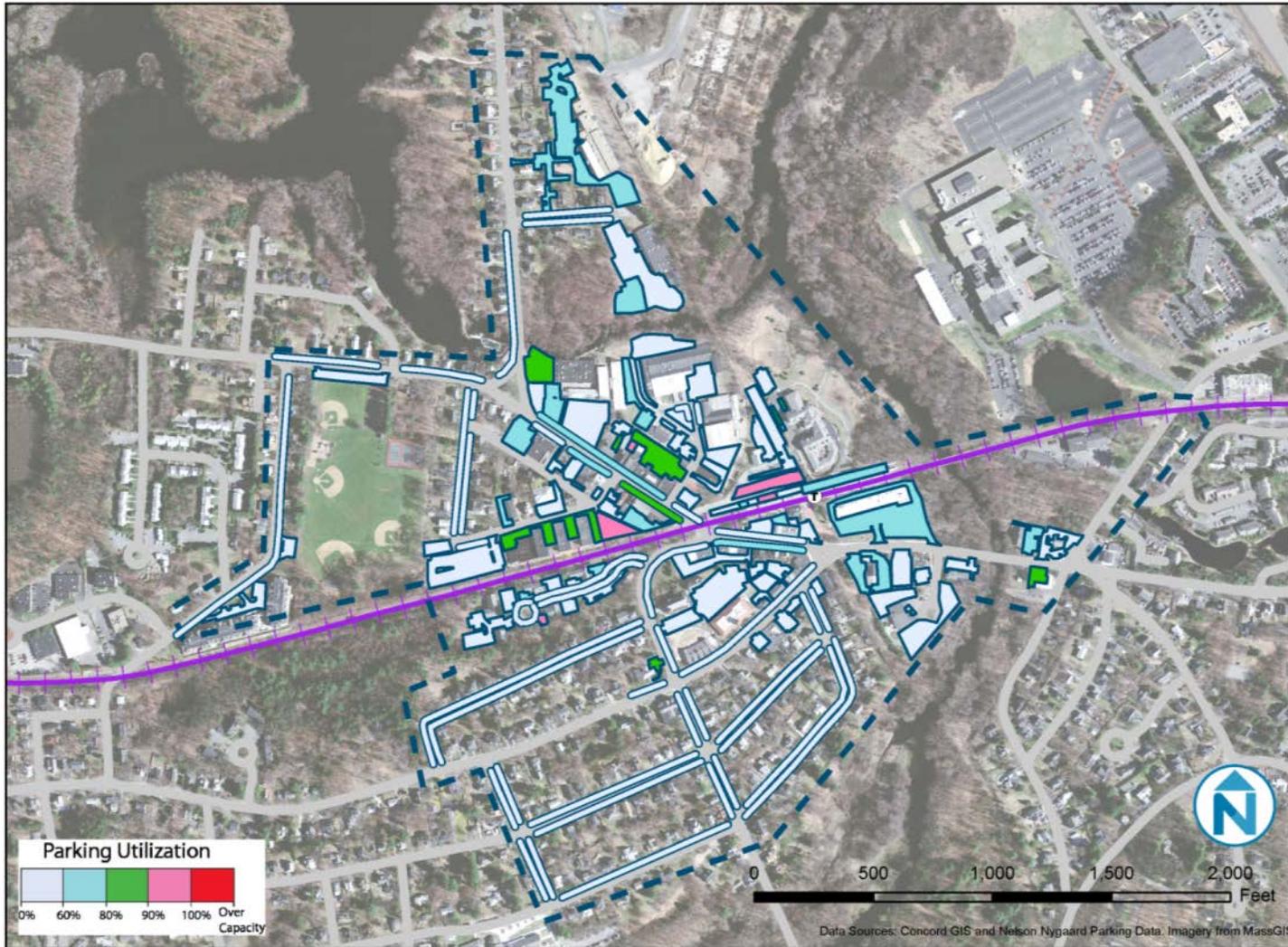
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 63 Weekday Parking Utilization from 11am - 1pm: West Concord



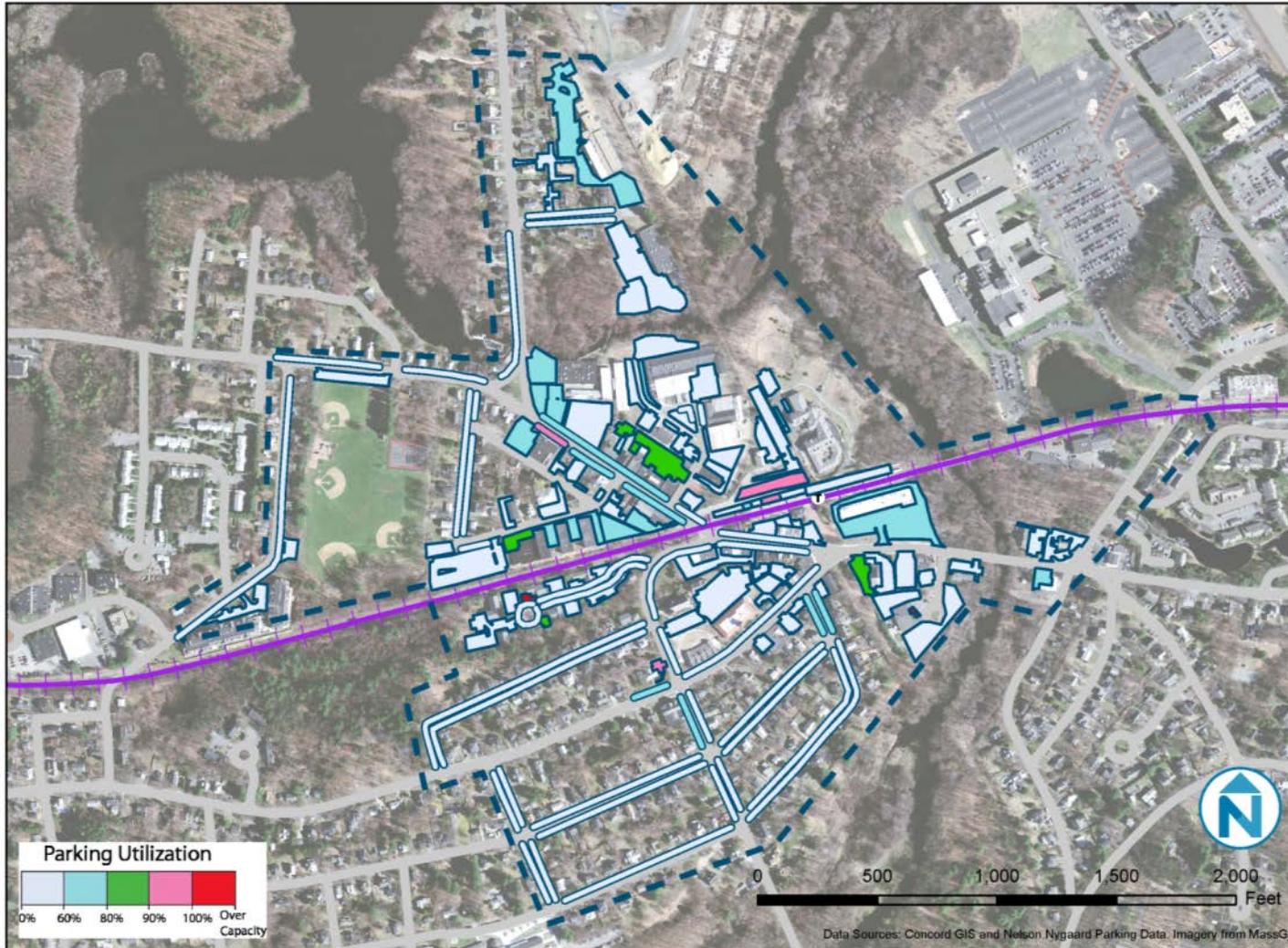
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 64 Weekday Parking Utilization from 1pm - 3pm: West Concord



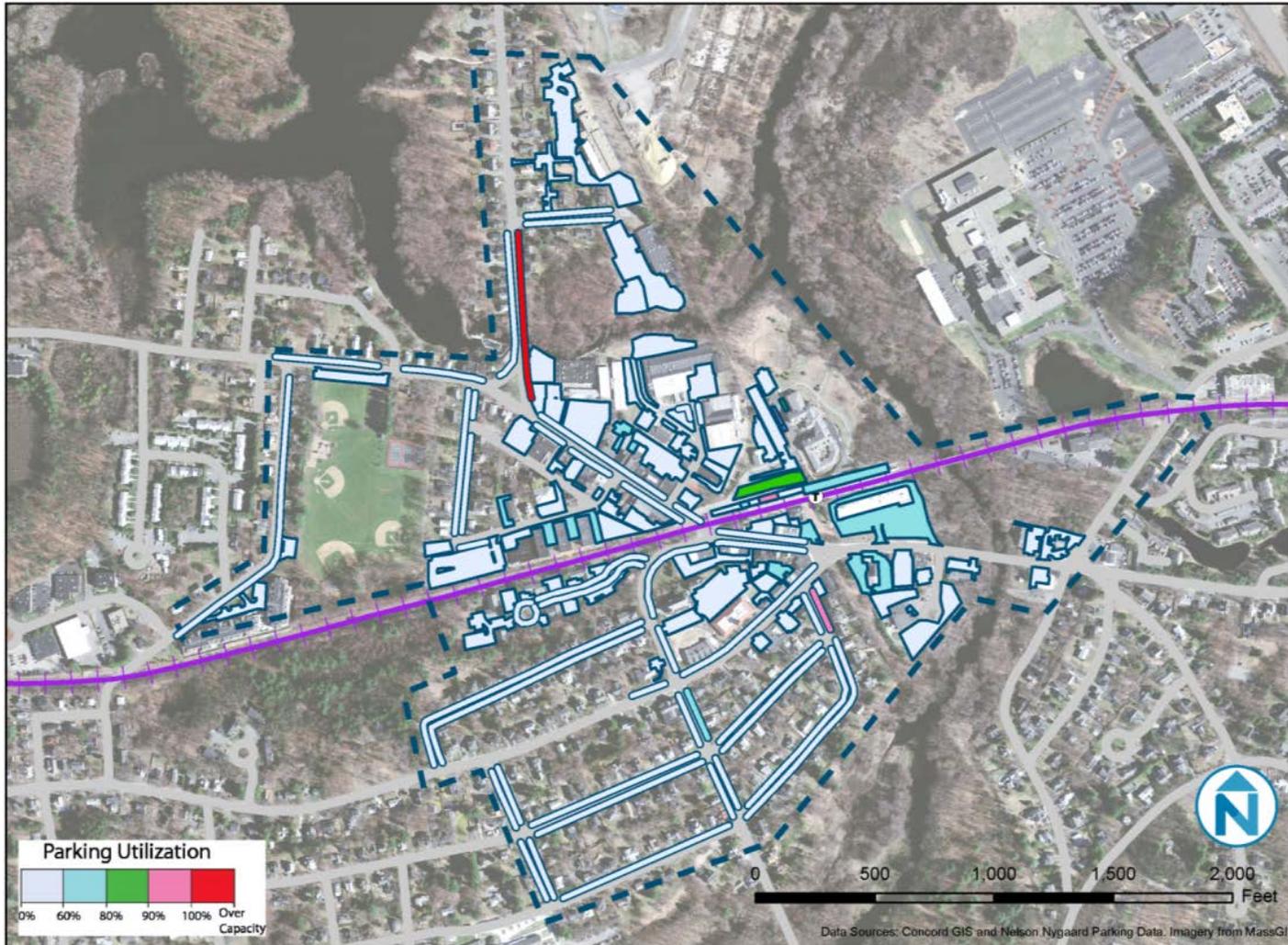
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 65 Weekday Parking Utilization from 3pm - 5pm: West Concord



CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

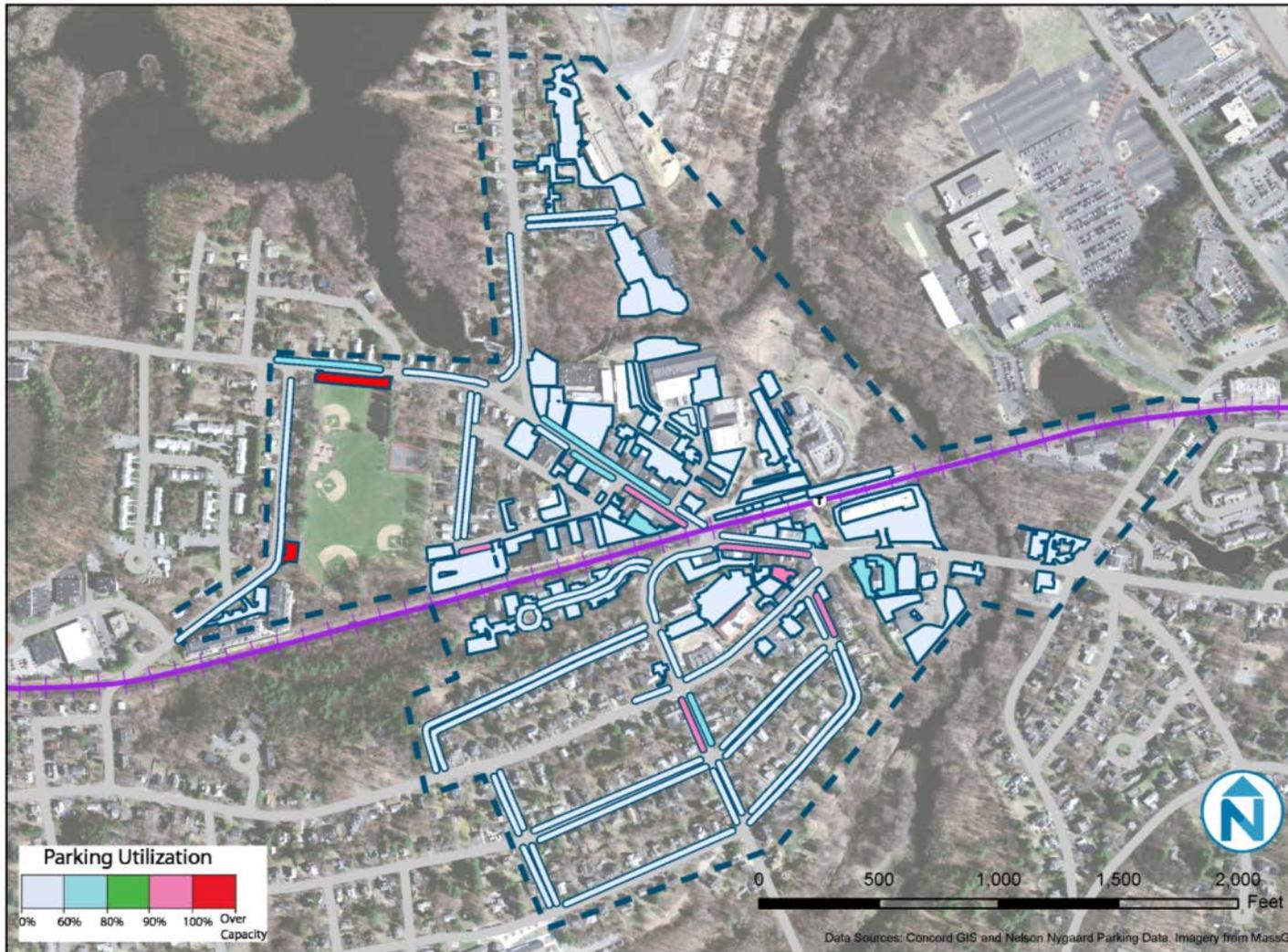
Figure 66 Weekday Parking Utilization from 5pm - 7pm: West Concord



The red area on Commonwealth Avenue next to the gas station indicates that although no parking is allowed, there were cars parked on this stretch during the utilization counts.

CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

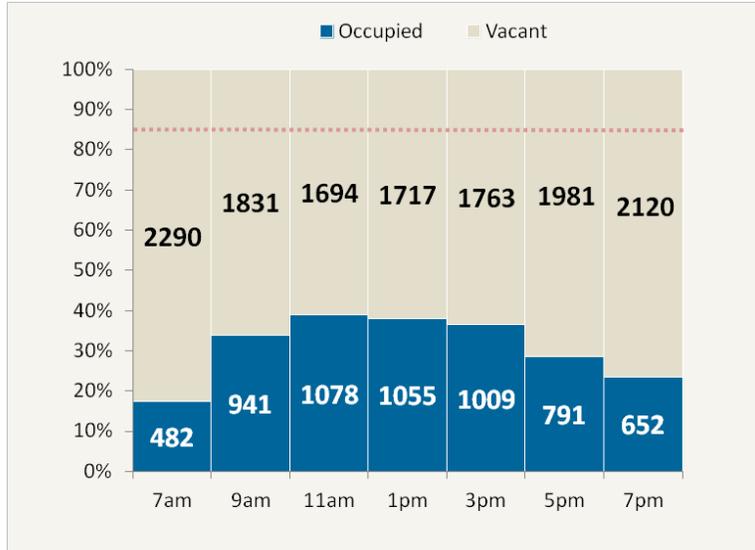
Figure 67 Weekday Parking Utilization from 7pm - 9pm: West Concord



All Parking Spaces - Weekday

Of the 2,772 spaces within the West Concord study area, the maximum utilization observed was 39% (1,078 spaces), occurred around lunch, between 11am and 1pm (Figure 68). This count included all inventoried spaces – both general and restricted access. Compared to the 85-percent optimal occupancy (shown by the red dotted line), there is plenty of parking capacity available within the study area.

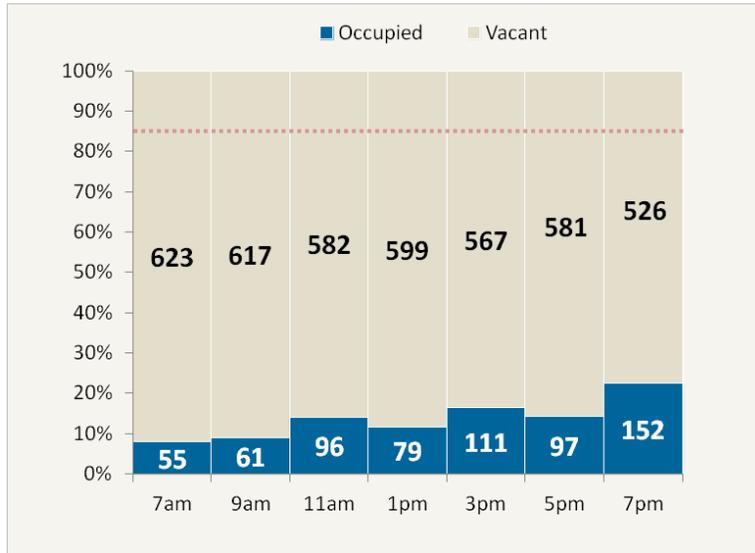
Figure 68 Weekday: All Spaces Demand in West Concord



On-Street Parking Spaces - Weekday

On-street, peak utilization was 22% (152 occupied spaces) and occurred in the evening, between 7pm - 9pm (Figure 69). The meters are off after 6pm, which could be the reason for higher occupancy. Still, even at peak, there is still about 520 vacant on-street spaces in the study area.

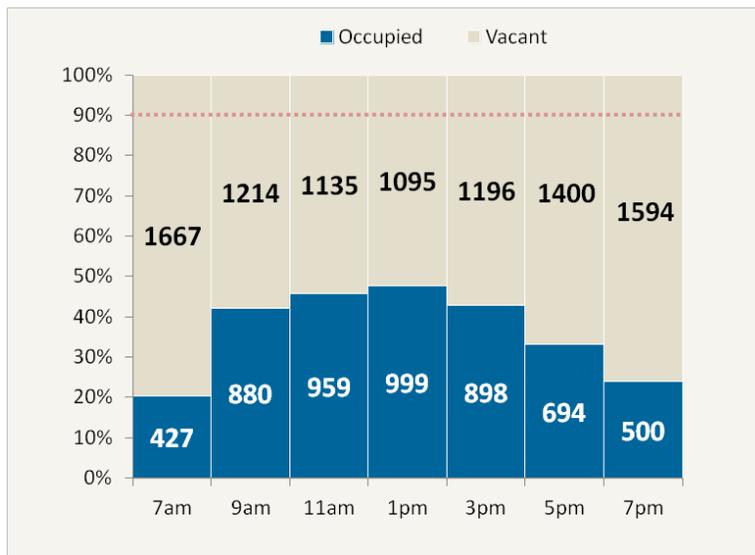
Figure 69 Weekday: On-Street Demand in West Concord



Off-Street Parking Spaces - Weekday

Peak off-street utilization is 47% (999 spaces) in the early afternoon, between 1pm and 3pm. Lunchtime (11am - 1pm) is the second busiest time of day for off-street parking spaces. There are at least over 1,000 vacant off-street spaces in the study area throughout the day.

Figure 70 Weekday: Off-Street Demand in West Concord



General Access and Restricted Access - Weekday

On the weekdays in West Concord, generally-accessible spaces have higher utilization than restricted access spaces. General access spaces peak at nearly half-full around lunchtime. Restricted access spaces stay around 20% full all day, likely a steady base of employee, customer and commuter parking.

Figure 71 Weekday: General Access in West Concord

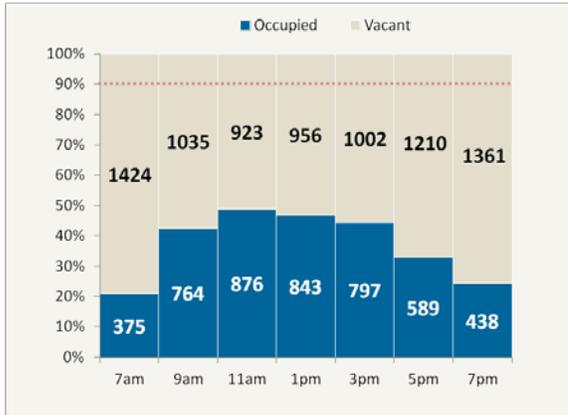
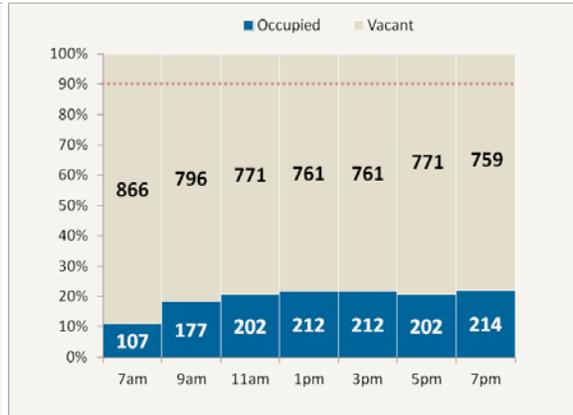


Figure 72 Weekday: Restricted Access in West Concord



Private and Publicly Owned Off-Street Lots - Weekday

On the weekdays in West Concord, publicly owned lots have higher utilization than privately owned parking. Public spaces reach nearly half-full around lunchtime and continue with activity through the evening. Private spaces peak around lunchtime and utilization declines the later it gets in the day.

Figure 73 Weekday: Privately Owned Lots in West Concord

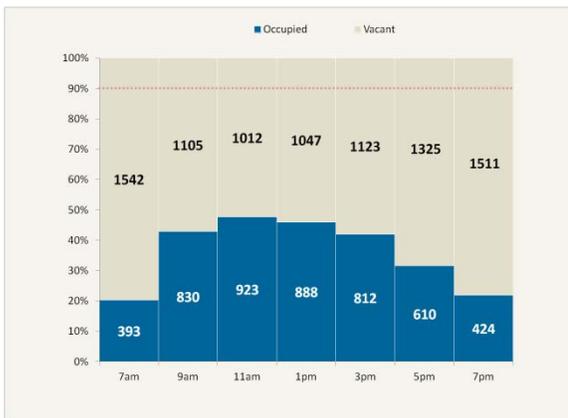
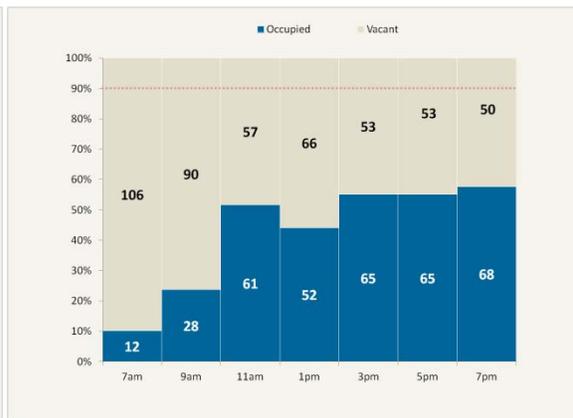


Figure 74 Weekday: Publicly Owned Lots in West Concord



Core Areas

The entire study area in West Concord is approximately equal to a five-minute walking boundary from the intersection of Main Street and Commonwealth Avenue. To better analyze the heart of activity in West Concord, the team isolated the on and off-street parking immediately adjacent to retail uses on Main Street and Commonwealth Avenue. This core area includes the on-street segments and lots shown in the map below (Figure 76).

Utilization in the core area (Figure 75) peaks from 1pm - 3pm at 56% occupied. Core area parking is more than half-full from 11am - 5pm. This core area has a higher peak utilization rate than the study area as a whole (39% compared to 56%).

Figure 75 Weekday: West Concord Core Area

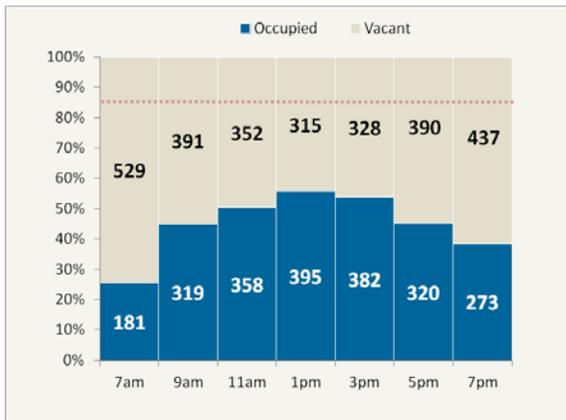


Figure 76 Map of Core Area in West Concord



Focus Areas

Although the overall utilization of the entire study area hovered around 40-percent for midday peak parking, demand is not uniform throughout the study area. There are pockets of demand within West Concord where parking utilization is substantially higher or lower than expected. These include the lot behind the Commonwealth Avenue shops, the lot to the east of the Bradford Mill development, general access parking near the commuter rail station, commuter rail parking, and metered on-street parking spaces.

Commonwealth Avenue Off-Street Lot

The 41-space shared parking lot behind the even-numbered Commonwealth Avenue retail is open for both employee and customer parking. This is the lot closest to the front door of many shops and a highly desirable place to park. Around lunchtime from 11am - 1pm, the lot is at capacity (95%), with only two spaces available. In the afternoon, the lot is also close to capacity, with utilization between 83-87% (Figure 77).

Figure 77 Weekday: Commonwealth Avenue Customer/Employee Lot

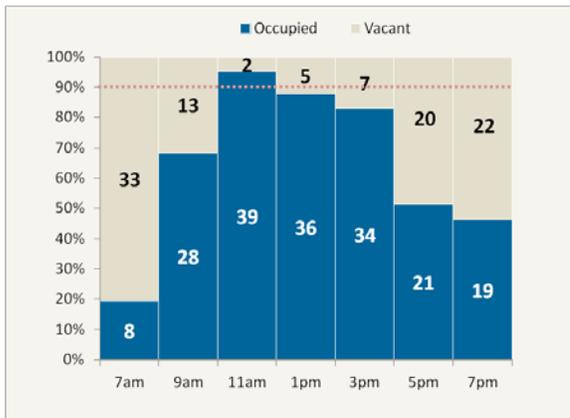
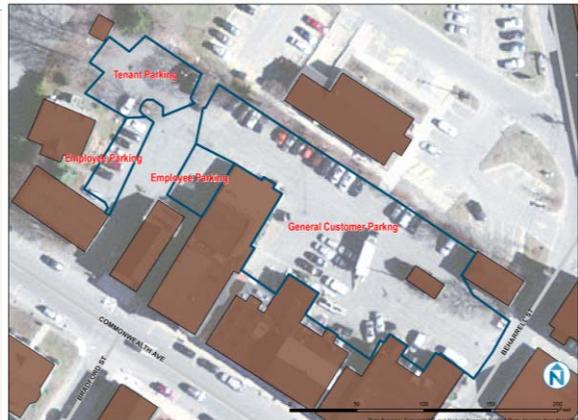


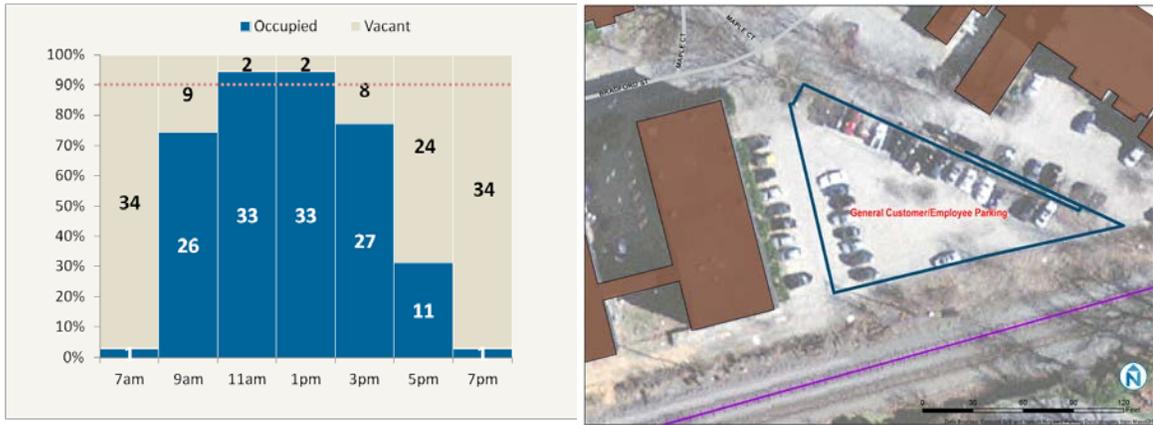
Figure 78 Map of Commonwealth Avenue Customer/Employee Lot



Off-Street Parking near Bradford Mill

The triangle-shaped off-street parking lot behind the odd-numbered Commonwealth Avenue shops and adjacent to Bradford Mill experiences high demand throughout the day. Between 9am and 3pm, the lot has less than 10 spaces available (at least 75% full), and from 11am - 3pm, the lot is 94% full. This is a popular place for both employees and customers to park in West Concord, even though it is located on privately-owned land.

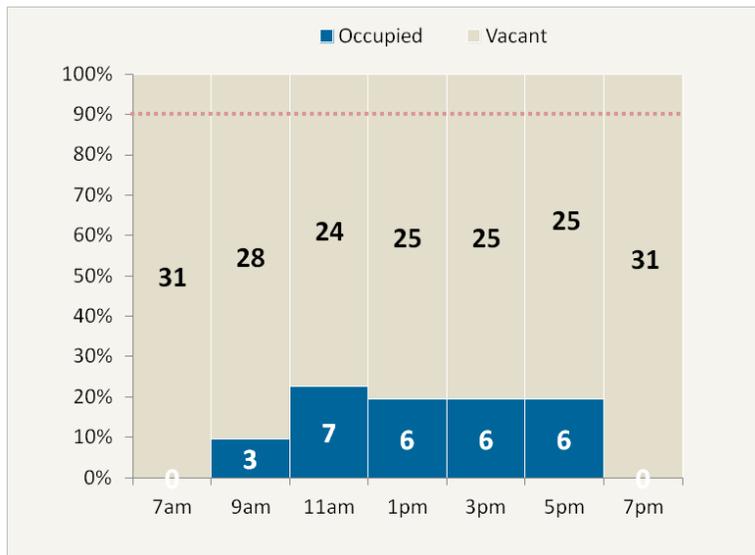
Figure 79 Weekday: Lot east of Bradford Mill Figure 80 Map of Bradford Mill lot (east)



General Access Spaces near the Rail Station

In the parking lot to the north of the West Concord MBTA Commuter Rail Station (on the town-owned portion of the lot), there are some designated spaces for general access parking. From the parking lot entrance off Commonwealth Avenue, there are 13 three-hour free spaces, 6 handicapped spaces, and 12 more three-hour free spaces. These spaces are underutilized and at peak, are 22% occupied (Figure 81).

Figure 81 Weekday: Three-hour and Unregulated Spaces in the West Concord Commuter Lot



Commuter Parking

There are over 200 dedicated commuter rail spaces in West Concord. 167 of these spaces are paid MBTA Commuter Rail spaces, and 41 are paid Concord resident permit spaces. The MBTA spaces are underutilized throughout the day; at peak, they are 43% full (Figure 82). The MBTA's website indicates that average weekday parking availability is 20%. For resident permit spaces, they are well-utilized, with peak utilization at 97% full (Figure 83).

Figure 82 West Concord MBTA Commuter Parking

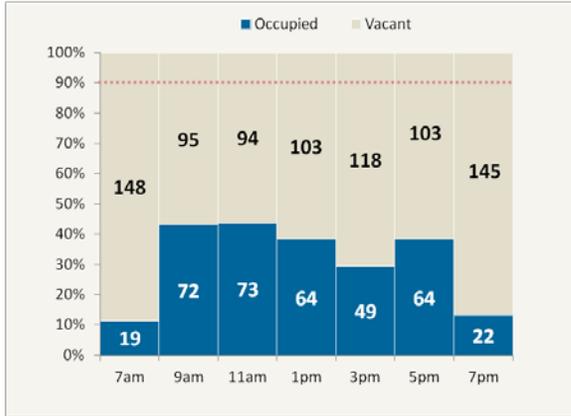
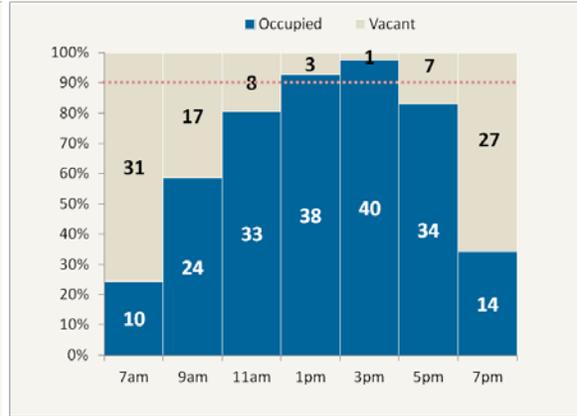


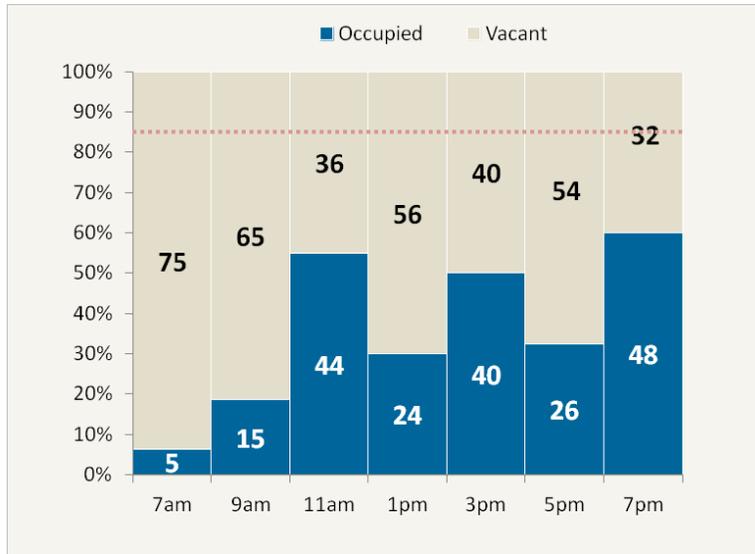
Figure 83 West Concord Resident Commuter Parking



On-Street Metered Parking

Customers coming to shop in West Concord will often search for an on-street parking space to park nearby their destination. Metered parking exists on Main Street, Church Street, and Commonwealth Avenue. However, utilization of metered parking peaks after the time limits and payment ends in the evening. Demand peaks around lunchtime (55%) and in the evening (60%).

Figure 84 Weekday: Main Street, Church Street, and Commonwealth Avenue Metered On-Street Parking



Rideout Playground

Off-street lots at Rideout Playground are well-utilized when there is activity at the park. On a typical weekday evening, the lots are completely full (Figure 85 and Figure 86), but during the day, there is plenty of capacity.

Figure 85 Rideout Playground - Parking Lot on Laws Brook Road

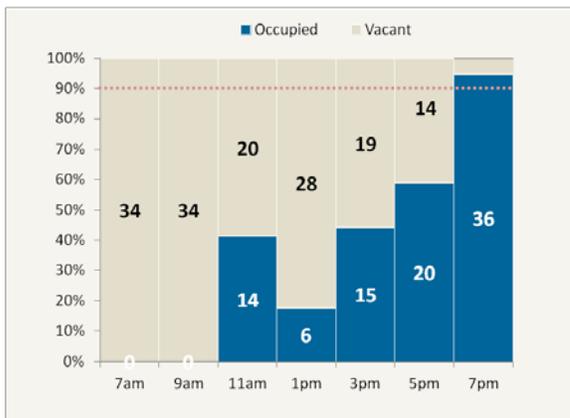
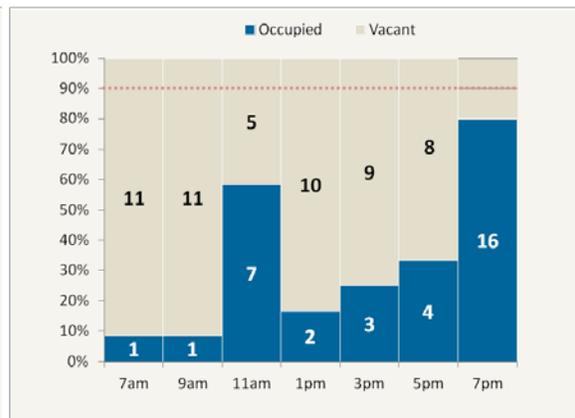


Figure 86 Rideout Playground - Parking Lot on Conant Street



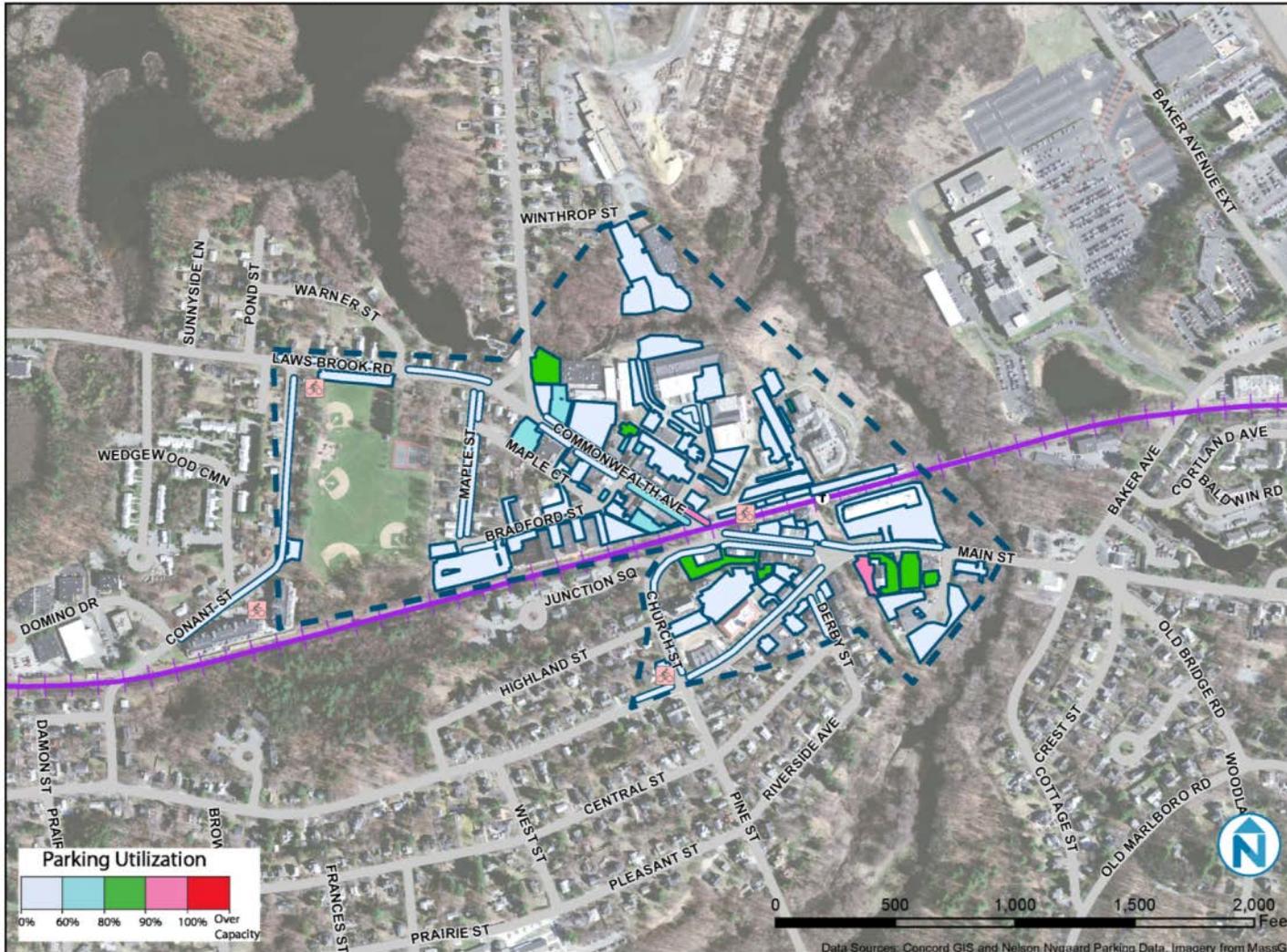
Weekend Utilization

Weekend demand in West Concord is lower than weekday demand overall. Weekend mornings appear to be busier than afternoons, with demand of 25% - 27% between 9am - 3pm, and demand under 20% between 3pm - 7pm. Pockets of high demand occur early morning at the parking lot for Nashoba Bakery, the lot behind Concord Teacakes, and at Dunkin Donuts, and mid-day, the

customer/employee lot behind Debra's Natural Gourmet is at capacity. Other areas of West Concord have low demand throughout the day.

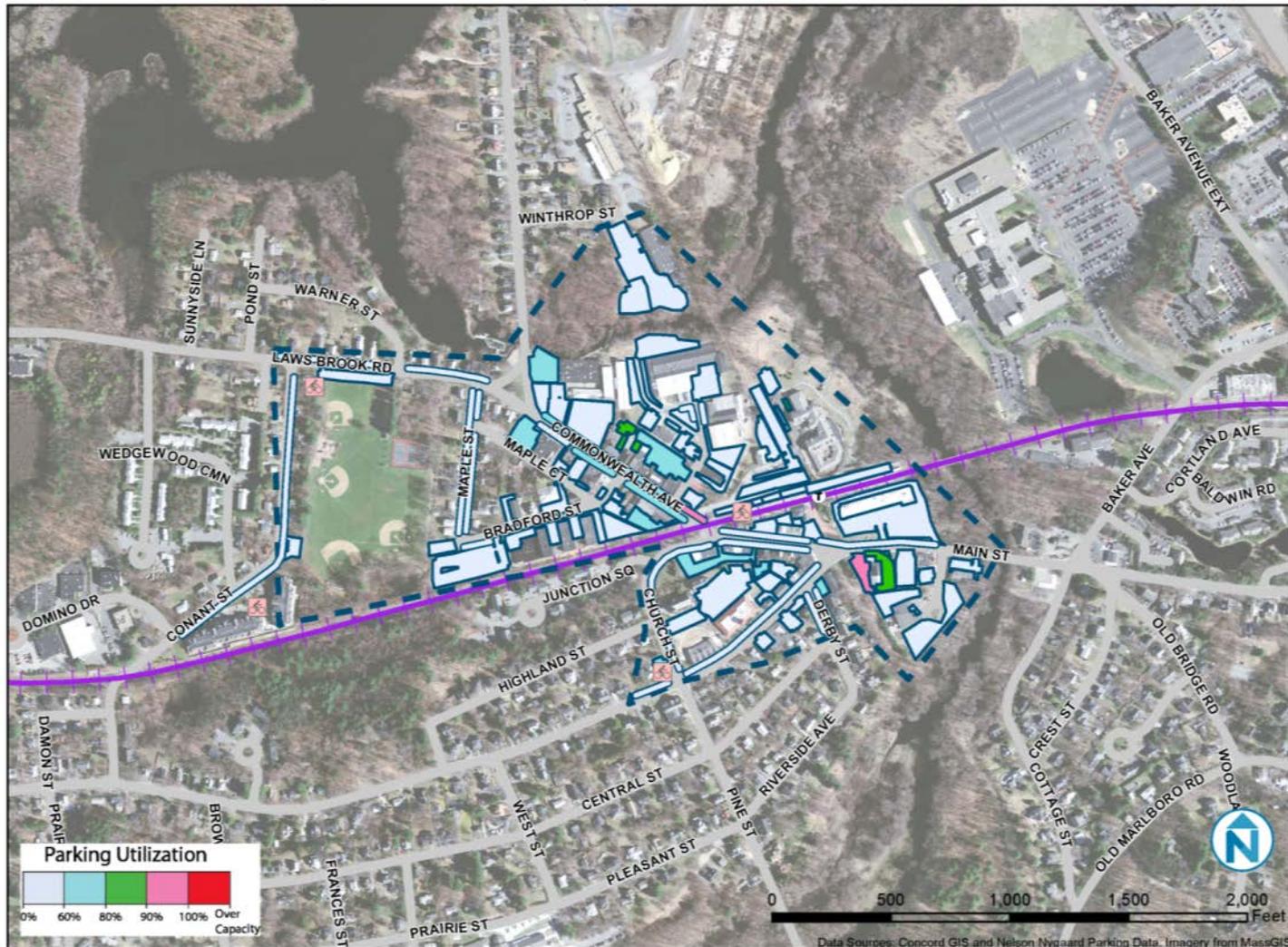
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 87 Weekend Parking Utilization from 9am - 11am: West Concord



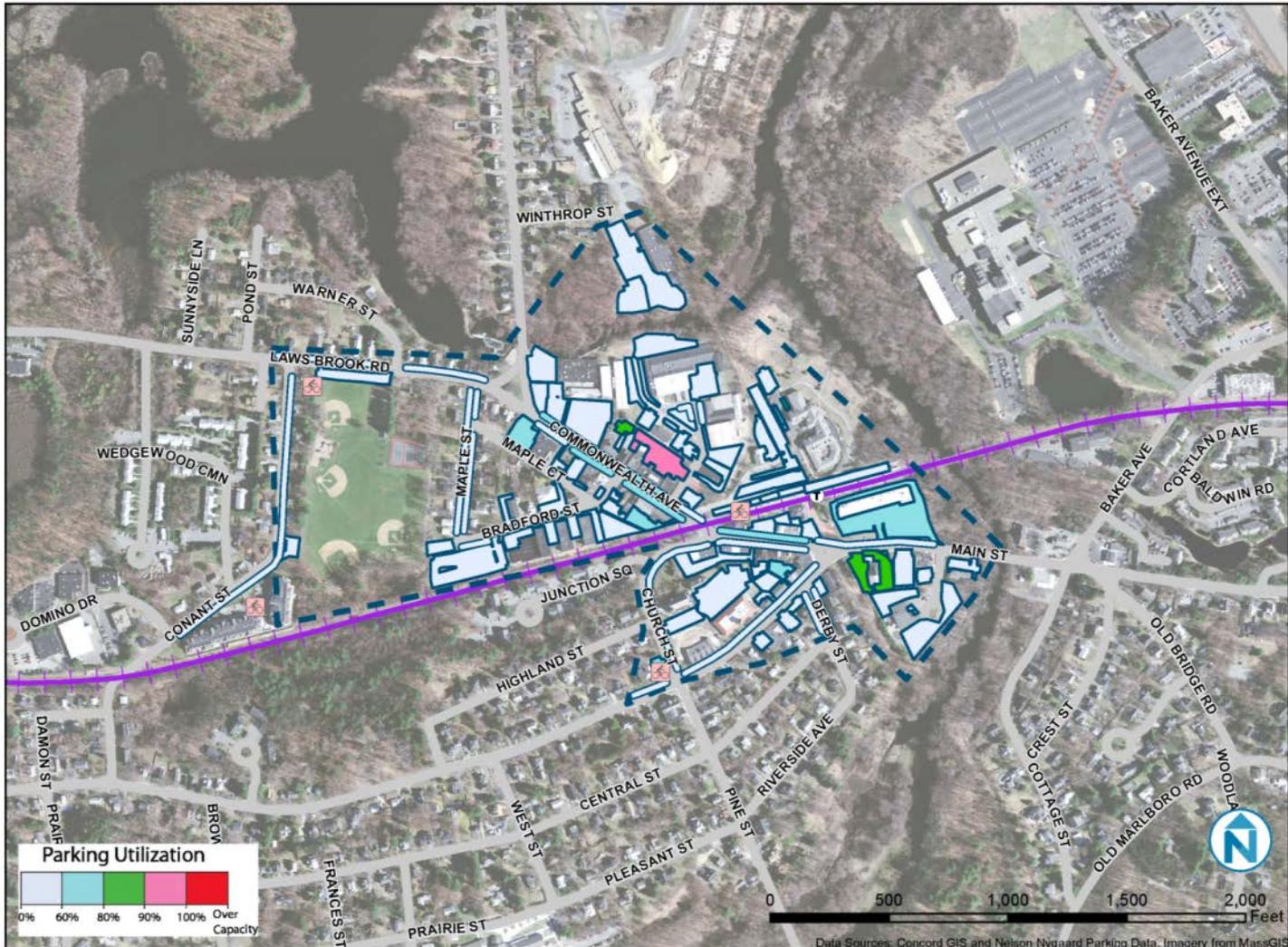
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 88 Weekend Parking Utilization from 11am - 1pm: West Concord



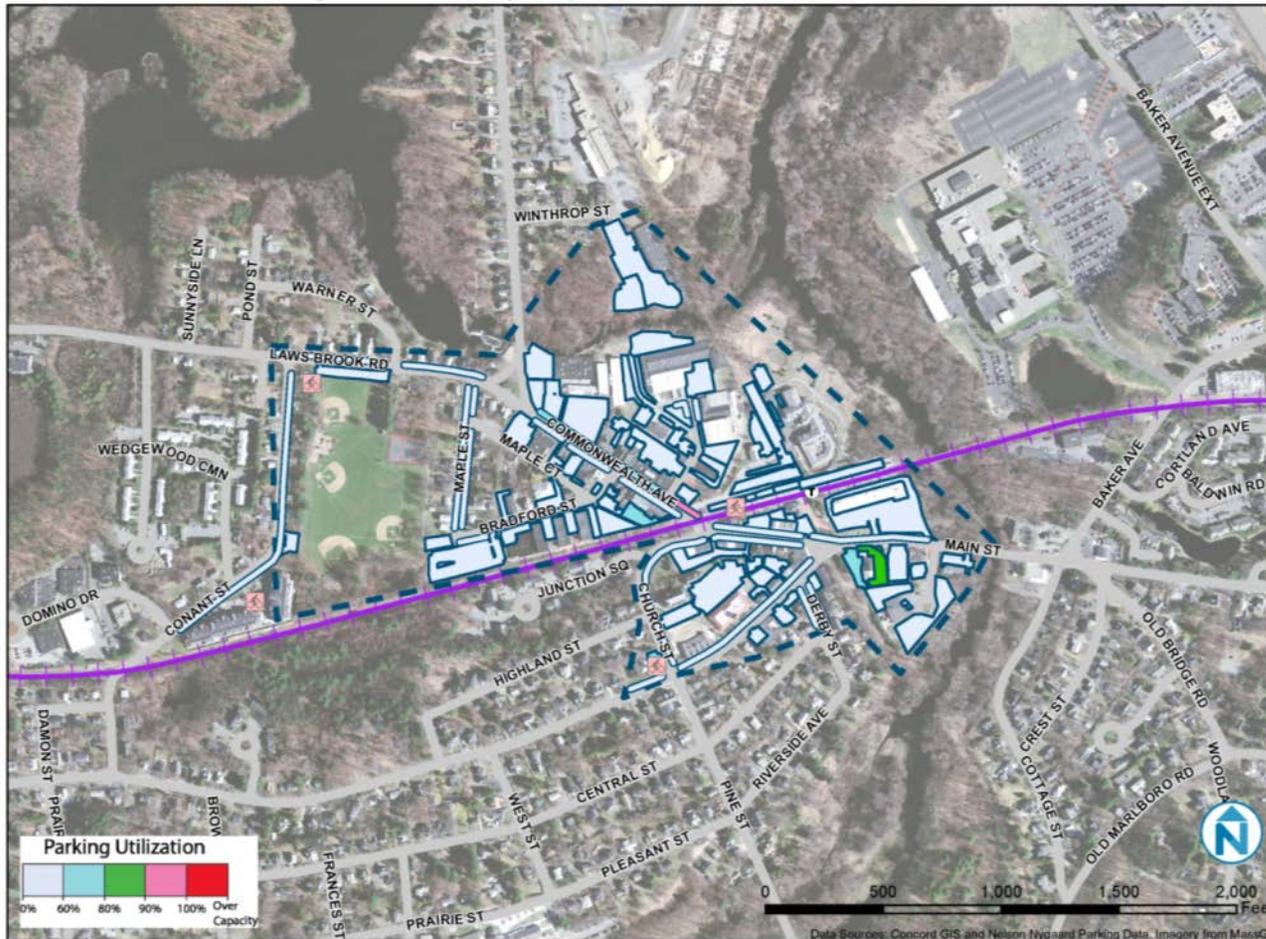
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 89 Weekend Parking Utilization from 1pm - 3pm: West Concord



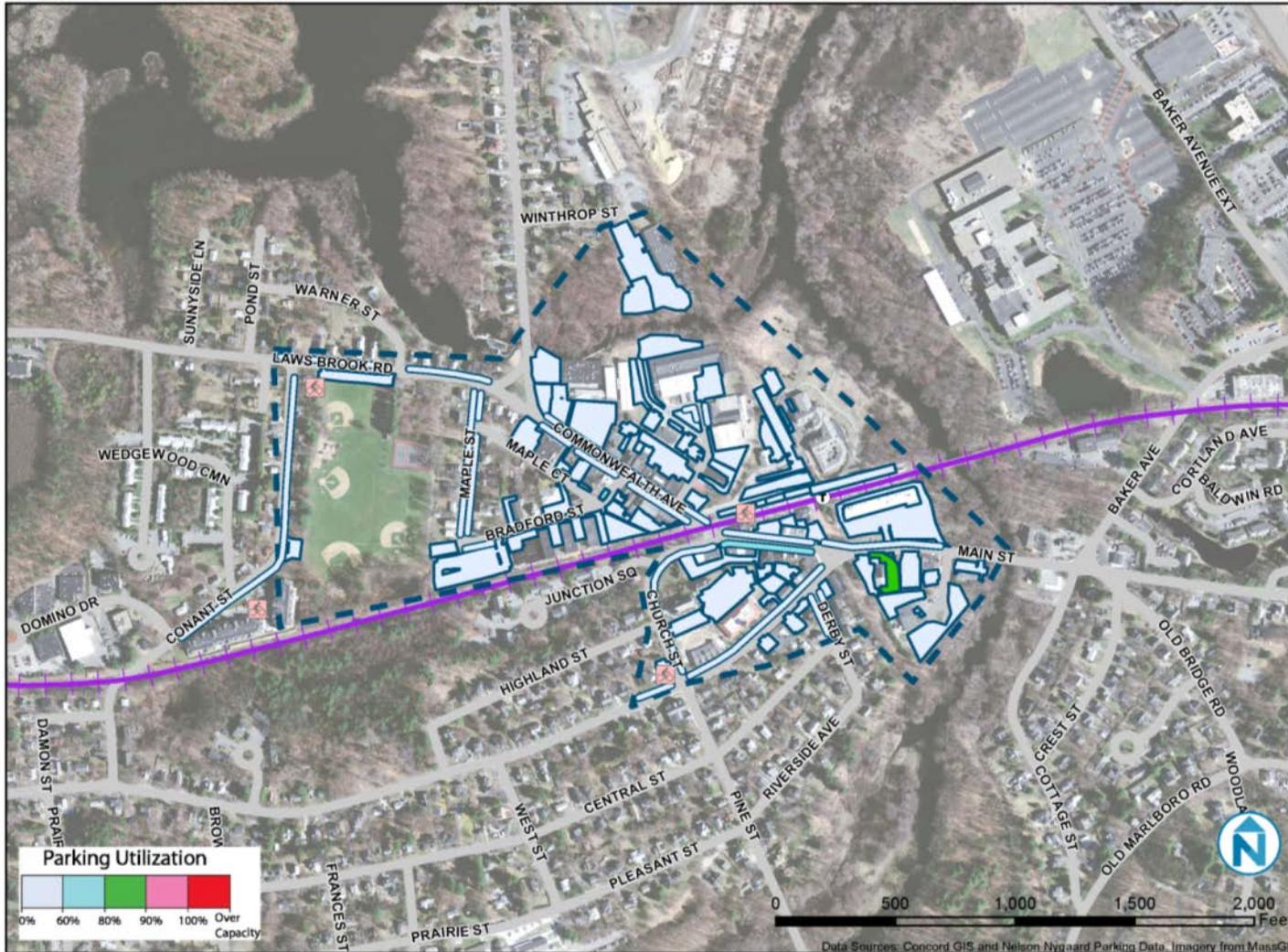
CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

Figure 90 Weekend Parking Utilization from 3pm - 5pm: West Concord



CONCORD PARKING MANAGEMENT STUDY | EXISTING CONDITIONS
Town of Concord

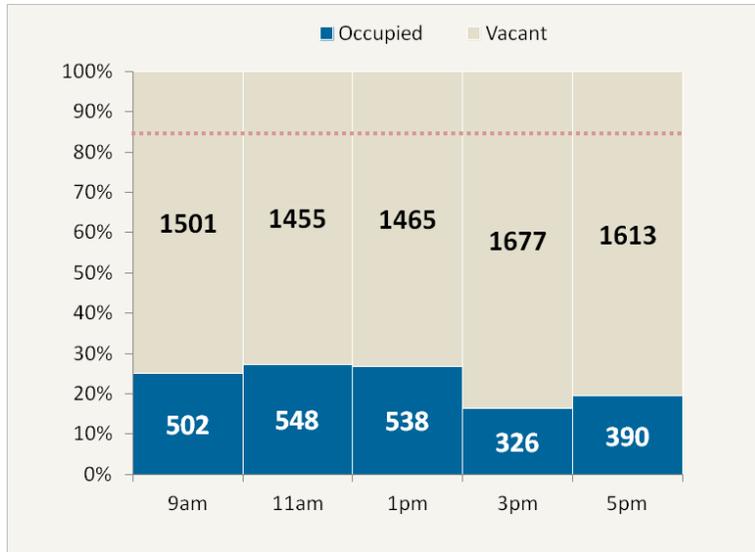
Figure 91 Weekend Parking Utilization from 5pm - 7pm: West Concord



All Parking Spaces - Weekend

As shown in Figure 92, of all 2,003 spaces in the West Concord weekend study area, the maximum utilization was 27% (548 spaces), which occurred between 11am and 1pm. Compared to the 85-percent optimal occupancy (shown by the red dotted line), these results indicate that the study area has overall sufficient parking supply that exceeds its weekend demand.

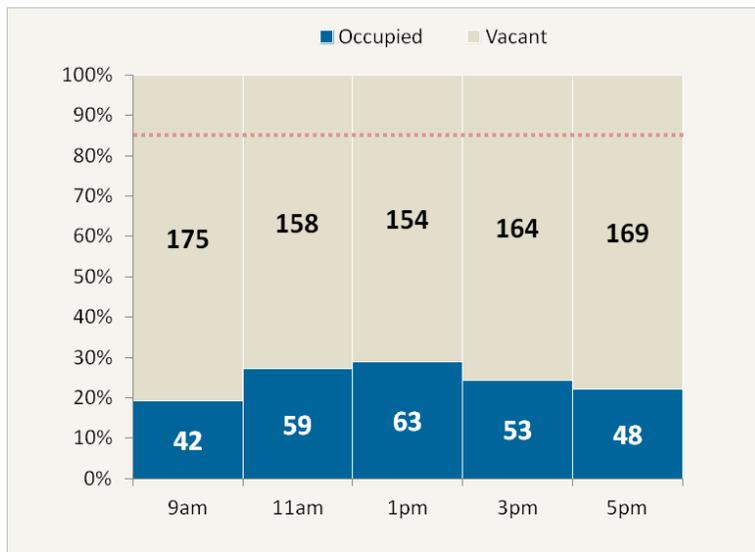
Figure 92 Weekend: All Spaces Demand in West Concord



All On-Street Spaces - Weekend

On-street peak utilization was 29% occupied (63 occupied spaces) at peak, between 1pm and 3pm (Figure 93). This left about 150 vacant on-street spaces in the study area throughout the day. This peak is likely people picking up lunch or running quick errands.

Figure 93 Weekend: On-Street Demand in West Concord



All Off-Street Spaces - Weekend

The peak off-street utilization of 27% (489 spaces) occurred between 11am and 1pm, leaving at least 1,300 vacant off-street spaces in the study area throughout the day.

Figure 94 Weekend: Off-Street Demand in West Concord

